

CITY OF PORTLAND, MAINE

PLANNING BOARD



Brandon Mazer, Chair
Maggie Stanley, Vice Chair
Marpheen Chann
Sean Dundon
Bob Dunfey
David Silk
Austin Smith

AGENDA PORTLAND PLANNING BOARD MEETING

The Planning Board will hold a remote meeting on Tuesday, June 23, 2020, 4:30 p.m. This meeting will take place using Zoom.

Virtual meetings are allowed using emergency legislation approved by LD 2167; 1 M.R.S. §403–A, that authorizes cities and towns to conduct meetings online.

Allow your computer to install the free Zoom app to get the best meeting experience.

ZOOM MEETING INSTRUCTIONS

You are invited to a Zoom webinar.

When: Jun 23, 2020 04:30 PM Eastern Time (US and Canada)

Topic: Planning Board Workshop and Public Hearing 06/23/2020

Please click the link to join the webinar: <https://us02web.zoom.us/j/88501125735>

Or iPhone one-tap :

US: +13017158592,,88501125735# or +13126266799,,88501125735#

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Webinar ID: 885 0112 5735

International numbers available: <https://us02web.zoom.us/j/88501125735>

For more information on how to use Zoom, please go to

<https://www.portlandmaine.gov/remotepud>

Public comments will be taken for each item on the agenda during the estimated allotted time and written comments should be submitted to planningboard@portlandmaine.gov

WORKSHOP - 4:30 PM

- i. Level III Site Plan and Conditional Use; 40 West Commercial Street; Maine International Cold Storage Facility, LLC., Applicant. (estimated time 4:30 – 6:30 p.m.) The Planning Board will hold a workshop to consider a proposal for a 108,024 square foot cold storage facility and associated site improvements at 40 West Commercial Street. The proposed structure is a single-story warehouse building that measures 75 feet in height at its highest point. The subject property is a vacant 17.9 acre parcel and is located within the Waterfront Port Development Zone.
- ii. Level III Site Plan and Subdivision; 210 Valley Street; Avesta Valley Street, LP., Applicant. (estimated time 6:30 – 7:45 p.m.) The Planning Board will hold a workshop to consider a proposal for the development of a 5-story, 72,113 square foot affordable residential building at with 60 units at 210 Valley Street. The subject property is 14,964 square feet in size and is zoned B-2.

PUBLIC HEARING - 7:45 PM

- 1. ROLL CALL AND DECLARATION OF QUORUM**
- 2. COMMUNICATION AND REPORTS**
- 3. REPORT OF ATTENDANCE AT THE MEETING HELD ON JUNE 9, 2020**

Workshop

60 Merrymeeting Drive: Chann, Dundon, Dunfey, Mazer, Silk, Smith, and Stanley present.

844 Stevens Avenue: Chann, Dundon, Dunfey, Mazer, Silk, Smith, and Stanley present.

Public Hearing

B-7 Zoning Text Amendment: Chann, Dundon, Dunfey, Mazer, Silk, Smith, and Stanley present.

- 4. REPORTS OF DECISIONS AT THE MEETING HELD ON JUNE 9, 2020**

- i. B-7 Zoning Text Amendment; Earle W. Noyes & Son, Inc., Applicant. Stanley moved and Dundon seconded a motion to recommend the adoption of the zoning text amendment to the City Council. Vote 7-0.

- 5. NEW BUSINESS**

- i. Level III Subdivision; 148 Newbury Street; Stephen and Sarah Roop, Applicant. **At the request of planning staff, this item is being tabled to the July 28, 2020 Planning Board meeting. A notice will be sent to abutters when a meeting time has been confirmed.**

Memorandum
Planning and Urban Development Department
Planning Division



To: Brandon Mazer, Chair, and Members of the Portland Planning Board
From: Christian Roadman, Planner
Date: June 19, 2020
Re: Cold Storage Facility, 40 West Commercial Street
Project #: PL-001042-2020 CBL: 059 A001
Meeting Date: June 23, 2020



Context of proposed project at 40 West Commercial Street (highlighted in teal)

I. INTRODUCTION / PROPOSED DEVELOPMENT

Maine International Cold Storage Facility, LLC seeks to build a 107,203 gross square foot cold storage facility on state-owned land located at 40 West Commercial Street. This large-scale refrigerated warehouse facility, which would be the only one of its kind in Portland, is intended to support marine-related and other intermodal commerce. While the height of the proposed facility varies (up to 75 feet, based on interior program and zoning restrictions) the entire building is proposed as one story. In the current proposal, an area next to the proposed building is reserved for potential future expansion.

The 17.9 acre development site is located adjacent to the International Marine Terminal (IMT) and proposes an interior connection to that site. A significant feature of the proposed site plan is its accommodation of trucks for loading and delivery. While this is central to the project's purpose, Planning staff note large expanses of pavement intended for vehicular maneuvering that could be reduced or eliminated to reduce the level of hardscape on the site.

The June 23rd Planning Board meeting will be the project's first workshop. Staff would like to focus on site design and conditional use considerations at this meeting. A second workshop, focusing more on transportation impacts, is anticipated to follow.

The Planning Department sent 83 notices for this workshop to the owners of property within 500 feet of the property in question. Legal advertisements ran June 11 and June 12.



Rendering of proposed project at 40 West Commercial Street, in context viewed from the east (image: Applicant)

Applicant: Maine International Cold Storage Facility, LLC

Consultants: Woodard & Curran, Inc. (civil engineering); CWS Architects (building design)

II. REQUIRED REVIEWS

Waiver Requests	Applicable Standards
1. Retain existing driveway width of ~108 f.	Technical Manual Section 1.7.2.4: maximum driveway widths shall not exceed 30 ft. for industrial uses.
2. Twelve non-standard parking spaces of 12 x 55 ft. (intended for trucks)	Technical Manual Section 1.14: parking space measurements of 9 x 18 ft.
3. Parking lot drive aisle width of ~116 ft.	Technical Manual Figure I-27: 24 ft. parking drive aisle width.
4. Exemption from south-side sidewalk along West Commercial Street. (Shared-use path infrastructure contribution anticipated)	Land Use Code Sections 14-498, 14-526, 14-506: requiring sidewalks to be constructed on each side of each street
5. Exemption from stormwater flooding standard, because of discharge into tidally-influenced waterbody.	Technical Manual Section 5.III, 5.IV
Review	Applicable Standards
Site Plan	Section 14-526
Conditional Use (Cold Storage Facility)	Sections 14-320 and 14-474
Site Location of Development	Technical Manual Section 14

III. PROJECT DATA

Existing Zoning	Waterfront Port Development Zone
Existing Use	Industrial, Storage, Vacant
Proposed Use	Industrial, Cold Storage Facility
Property Size	779,724 sf.

	Existing	Proposed	Net Change
Building Footprint (sf.)	0	107,203	+107,203
Building Floor Area (sf.)	0	107,203	+107,203
Impervious Surface Area (sf.)	85,378	222,725	+137,347
Parking Spaces	0	30 standard, 12 truck spaces	+42
Bicycle Parking Spaces	0	6	+6

IV. EXISTING CONDITIONS

The property upon which the applicant proposes to develop the cold storage facility is a large state-owned site. While it sits in a generally industrial area along West Commercial Street, it is geographically close (approximately 500 feet) to neighborhoods and residences on the peninsula's West End. According to the applicant (**attachment C**), the site, which is now generally clear of buildings, previously housed a natural gas / propane distribution facility. Abutting the site to the west is a boat repair and sale yard. On the same property, to the north as well as to the west of the proposed cold storage facility, are storage areas for shipping containers at the IMT. A railroad spur ends at the site.

The IMT is a large facility, the operations of which include loading and unloading of cargo ships and storage of shipping containers. The proposed cold storage facility is proposed as a symbiotically beneficial complement to the IMT, providing more efficient storage of shipped goods requiring refrigeration.

While the zoning for conditional uses on the property allows up to 75 feet in height, such a proposal represents a significant change from the generally level and unobstructed view currently available through the site, including from the nearby west end neighborhoods situated up the hill. The area was rezoned in 2017 to allow for additional height for to help ensure continued viability of the western waterfront for just such uses, following an extensive public process with the surrounding neighborhood, concerned residents and stakeholders. The property's southern length is entirely bound by the Fore River.

The applicant describes the development site in their location of development report (**Attachment X**):

"The area of the 17.9-acre property where the Cold Storage Facility is proposed is currently vacant. There are remnant concrete slabs and pavements, site lights, transformer pads, railroad tracks, and gravels that will be removed. Other portions of the property, outside of the proposed Cold Storage Facility, are currently being used for various IMT operations. There is also a gas facility operated by Unifit located on the parcel." These existing conditions can be viewed on the site survey (**Attachment P2**).

V. PUBLIC COMMENT AND NEIGHBORHOOD MEETING

The applicant held a remote neighborhood meeting on June 10, 2020, as attested in certification documents (**Attachment W**). According to the provided minutes, questions were asked and answered regarding potential noise from trucks and the facility, building height and capacity, environmental and health impacts of construction, proposed and potential future usage, landscaping, and other project-related specifics.

As of the writing of this report, the Planning Department received seven public comments (**Attachments PC1 - 7**) expressing concern about the project, specifically relating to its need / economic feasibility, the size of the proposed building, its impacts on views, traffic, pollution, noise, and its appropriateness per zoning.

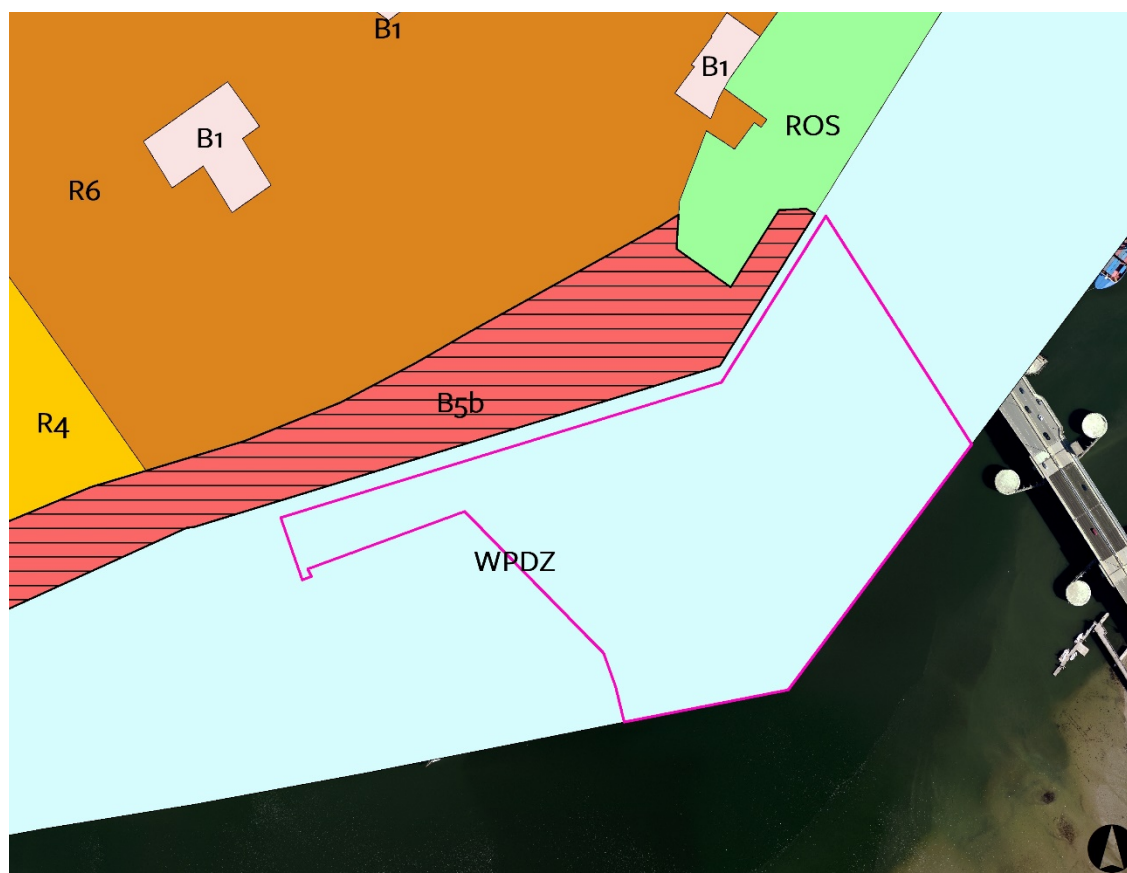
VI. RIGHT, TITLE, & INTEREST AND FINANCIAL & TECHNICAL CAPACITY

The applicant provided a deed of convenience evidencing the Maine Department of Transportation's ownership of the property in question, and an option to ground lease and subsequent extension (**Attachment E**) between the Maine Port Authority and Maine International Cold Storage Facility, LLC.

The applicant also provided a letter with holdings information (**Attachment J**) from Amber Infrastructure Group, a partner in the project, to evidence financial capacity to undertake the project.

The applicant cited consultant experience and expertise as evidence of technical capacity.

VII. ZONING ANALYSIS



Zoning context of proposed project at 40 West Commercial Street (highlighted in pink)

The subject property is within the Waterfront Port Development Zone (WPDZ). A cold storage facility is a conditional use in this zone. Please note that in the WPDZ, conditional uses have a particular set of dimensional requirements:

	Required	Proposed
Lot Size (sf/ac)	5 acres	17.9 acres
Minimum Street Frontage (ft.)	None	~1,600
Front Yard Minimum (ft.)	None	151
Front Yard Maximum (ft.)	None	151
Rear Yard (ft.)	None	210
Side Yard (ft.)	None	44
Maximum Height (ft)	75	~74
Maximum Lot Coverage (%)	50%	14%
Off-Street Parking	Determined by Planning Board	42

The City's zoning administrator participated in the review of the proposed project (**Attachment 1**) and the project

meets most of the required zoning criteria. However, the zoning administrator flagged several items necessary from the applicant to further confirm conformance with zoning: calculation of average grade, placement of the flood zone line on the site plan, and a determination from the Federal Aviation Administration (FAA) confirming that the project will not exceed height limits for nearby runways or present hazards for navigable airspace.

The applicant submitted a conditional use application, but should provide responses regarding the conditional use criteria below. Initial staff impressions are provided in the interim.

Sec 14-230: Standards for Conditional Uses in the WPDZ

- *Not impede or preclude existing or potential water-dependent development on other lots*
 - Staff Response: The project is intended to supplement and support water-dependent functions at the IMT.
- *Allow for adequate access to the water*
 - Staff Response: The project is located on an existing, previously developed (though now vacant) industrial site bound by other development. As currently conceived, this project will not provide public access to the water's edge, though it is on a section of West Commercial Street planned for multi-use trail connections between this area of the peninsula and the Fore River. What would constitute adequate access to the water for this site still needs further deliberation in the course of the Board's review.
- *Be compatible with water dependent and marine uses*
 - Staff Response: As noted above, the project is intended to supplement and support water-dependent / marine uses at the IMT.
- *Operationally support one or more water dependent use(s), or be located in a building or structure that is physically adaptable or relocatable to make way for future development of water-dependent uses*
 - Staff Response: As noted above, the project is intended to supplement and support water-dependent / marine uses at the IMT.
- *Meet any additional performance and dimensional standards set forth [in sections 14-320.2 and 14.320.3]*
 - Staff Response: The project generally conforms to dimensional standards, with additional information required of the applicant noted above. The applicant describes conformance to the zone's performance standards, such as noise and vibration standards, in a document submitted with their application (**Attachment M**).

Section 14-474: Standards for Conditional Uses Generally

- *The volume and type of vehicle traffic to be generated, hours of operation, expanse of pavement, and the number of parking spaces required are not substantially greater than would normally occur at surrounding uses or other allowable uses in the same zone*
 - Staff Response: The proposed project is industrial and marine related in nature, and located adjacent to shipping and marine-related businesses, including the IMT (a site with significant activity). The zone permits as of right, or allows conditionally, a variety of marine and industrial uses. The applicant is encouraged to reduce pavement and impervious surface through a variety of methods. Significant reduction appears possible, and has been recommended by staff, but this has not been undertaken by the applicant. Vehicular movement and circulation within a reduced hardscape area could be achieved by limiting truck movements and simultaneous passage, reduction of parking, and elimination / reduction of a proposed access road encircling the building. The applicant is also required to submit a transportation demand management (TDM) plan addressing both employee and truck traffic. This has not yet been provided.
- *The proposed use will not create unsanitary or harmful conditions by reason of noise, glare, dust, sewage disposal, emissions to the air, odor, lighting, or litter*
 - Staff Response: The project is not expected to produce unsanitary or harmful conditions, and is also being reviewed under the City's site plan standards. However, the applicant is requested to demonstrate or document that the proposed photovoltaic array on the roof of the building will not cause undue glare.

- *The design and operation of the proposed use, including but not limited to landscaping, screening, signs, loading, deliveries, trash or waste generation, arrangement of structures, and materials storage will not have a substantially greater effect / impact on surrounding properties than those associated with surrounding uses or other allowable uses in the zone.*
 - Staff Response: The project is being reviewed under the City's site plan standards, and a Planning Board workshop focused on transportation-related impacts is anticipated in the near future. The City's consulting traffic engineer is involved in the project's review.



Rendering of the proposed project in context viewed from the south (image: applicant)

VIII. DEVELOPMENT REVIEW

A. SITE PLAN STANDARDS (Section 14-526)

Staff reviewed the proposed development for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations, and staff comments relative to each standard are below:

a) Transportation Standards

Impact on Surrounding Street Systems and Access and Circulation; Access and Circulation; Public Transit Access; Parking; Transportation Demand Management

Additional study, analysis, and review of the applicable transportation standards is forthcoming, but the City's consulting traffic engineer provided preliminary comments (**Attachment 2**) earlier in the review process. As noted above, the applicant must provide a TDM plan. He expressed a likely need for a traffic management permit (TMP) based on what he assumed would be a common scheme of development with the broader IMT site. The applicant feels that trip generation calculations (**Attachment T**) do not support the need for a TMP. The City's consulting traffic engineer is in contact with the applicant regarding additional traffic study necessary.

Regarding parking and operations, the applicant should confirm intended truck delivery / loading procedures. At the time of writing, staff understand that truck deliveries will be by appointment only. This may negate the need for the current provision of 12 truck parking stalls (conforming to 12 loading bays on the proposed cold

storage building). Even without reduction of these parking stalls, reduction in pavement by minimizing potential truck movements appears possible per the Department of Public Works (DPW) senior engineer's review (**Attachment 3**).

Additionally, per DPW review, the applicant must update their construction management plan (**Attachment P10**) to specify that all construction-related activities must enter the site from Interstate 295 via the Veterans Bridge / West Commercial Street or Franklin Street / Commercial Street. The construction management plan should also provide an updated construction schedule.

b) Environmental Quality Standards

Preservation of Significant Natural Features; Landscaping & Landscape Preservation; Water Quality, Storm Water Management and Erosion Control

The project was reviewed for conformance with relevant stormwater, water quality, and erosion control regulations by a third party civil engineer (**Attachment 4**). A stormwater BMP maintenance agreement must be provided for review by the City. The applicant requested a waiver from the City / DEP stormwater flooding standard, because the project conveys flows to a tidally influenced waterbody. Per the peer reviewer, this waiver is appropriate.

A portion of the site is within the flood zone. The applicant submitted a flood hazard development application (**Attachment X**) which must be reviewed by the Zoning Administrator.

Pursuant to the requirements of the flood zone, the lowest floor level of new nonresidential construction must be elevated above the base flood elevation of 10 feet or be flood-proofed. The applicant noted in their response to comments letter (**Attachment X**) that the project meets these requirements with a lowest floor elevation at 14 feet.

Per DPW review (**Attachment 3**) the applicant must provide a dewatering plan to prevent potentially contaminated groundwater from entering the City's stormwater system or Casco Bay untreated.

The City's arborist provided landscaping comments (**Attachment 5**) which were addressed in part by the applicant. The applicant currently intends to maintain a portion of the site immediately adjacent to the proposed building as loam and seed / reserved space for potential future expansion. Because the applicant indicated that no such expansion is imminent or actively planned for, additional landscaping should be considered here.

The project is located on a group of large parcels, and its street frontage could be calculated multiple ways. However, site flexibility within 20 ft. of the City's right of way is limited. Under one calculation of applicable frontage, the project would be expected to provide street trees or a contribution to the street tree fund (for approximately 280 feet of frontage, with trees required at 45 feet on center). This would require provision of 6 street trees per the definition within the City's technical manual, acceptable alternatives, or payment of \$2,400 into the City's street tree fund (\$400 x 6).

c) Public Infrastructure and Community Safety Standards

A City life safety professional participated in the project's review (**Attachment 6**), requiring placement of an additional fire hydrant and spacing information regarding proposed photovoltaic panels on the cold storage building's roof. The applicant subsequently addressed these comments to the reviewer's satisfaction.

The applicant proposes a 24 ft. wide access road linking two parking areas together, allowing emergency access to all four sides of the building. However, emergency access is only required for two sides of the building. Elimination of this access road would significantly reduce pavement / impervious surface. At the least, the access road should be reduced to 16 feet in width.

The applicant must provide an ability to serve letter from the Portland Water District. The Department of Public Works has confirmed the availability of adequate sewer capacity (**Attachment Q**).

d) Site Design Standards

1. Massing, Ventilation and Wind Impact; Shadows; Snow and Ice Loading; View Corridors; Historic Resources; Exterior Lighting; Noise and Vibration; Signage and Wayfinding

Planning staff reviewed the project's photometric plan (**Attachment P9**) and lighting cutsheets (**Attachment D**), and consider them acceptable.

2. Zoning Related Design Standards

The City's Urban Designer reviewed the project (**Attachment 7**). In relation to applicable design criteria, they posed the following questions to the Board:

- 1) Does the change in color sufficiently address the design standards regarding visual interest and equal treatment of facades for the two functional, water-facing elevations?
- 2) Does the board have further comments about the color selection or placement in relation to the standards – the intent is to prevent large expanses of blank wall while considering the functional constraints of buildings in an industrial zone.

B. SITE LOCATION OF DEVELOPMENT

The City of Portland has delegated review authority from the Maine DEP for large projects that trigger Site Location of Development Act (SLODA) review. The standards for this review include the items below, each of which dovetails with Portland's existing site plan and subdivision standards:

- *Financial & Technical Capacity*: see section V, above.
- *Traffic Movement*: see site plan standards, a, above.
- *No Adverse Effect on the Natural Environment, Ground Water, Flooding, Storm Water Management & Erosion and Sedimentation Control*: see site plan standards, b, above.
- *Soil Types*: The applicant provided a draft geotechnical report (**Attachment P**) and information regarding strategies to appropriately stabilize the building (**Attachment X**). Further review of this standard will be forthcoming.
- *Infrastructure*: see site plan standards, c, above.



Rendering of the proposed project from the north, in context at Beech St. at Commercial Street (image: applicant)

IX. Next Steps

The applicant is expected to address the action items and requests detailed above. The Planning Board is asked to consider whether the project adequately meets the relevant conditional use standards, and to weigh in regarding proposed pavement and impervious surface, landscaping, and building design. After the June 23 workshop, another workshop is anticipated to discuss transportation-related issues in more depth.

XIII. ATTACHMENTS

Report Attachments

1. Zoning Administrator Comments
2. Consulting Traffic Engineer Comments
3. DPW Senior Engineer Comments
4. Consulting Civil Engineer Memos & Comments
5. City Arborist Comments
6. Life Safety Reviewer Comments
7. Urban Designer Review Memos

Public Comment

- PC1. 4/16/2020
PC2. 4/17/2020
PC3. 4/17/2020
PC4. 6/4/2020
PC5. 6/16/2020
PC6. 6/18/2020
PC7. 6/19/2020

Applicant's Submittals

- A. Application Cover & Table of Contents
- B. Application Fees & Checklist
- C. Cover Letter & Project Description
- D. Site Lighting Submission Report
- E. Evidence of Right, Title, & Interest
- F. Easements & Other Burdens
- G. Waiver Table
- H. Evidence of State and or Federal Approvals
- I. Zoning Analysis Table
- J. Evidence of Financial & Technical Capacity
- K. Cold Storage Elevation Measurements Figure
- L. Design Standards Narrative
- M. Assessment of Zoning
- N. Vehicle Turning Movement Figures
- O. Comprehensive Plan Consistency Analysis
- P. Draft Geotechnical Report
- Q. Availability & Adequacy of Public Utilities
- R. Summary of Fire Codes
- S. Stormwater Management Report
- T. Trip Generation Analysis Memo
- U. Flood Hazard Development Application
- V. Response to Comments Letter 5/15/2020
- W. Neighborhood Meeting Certification Materials
- X. Site Location of Development Report

Plans

- P1. Cover Sheet & General Notes
P2. Survey
P3. Demolition

- P4. Site Plan
- P5. Civil Details
- P6. Grading & Drainage
- P7. Utility Plan
- P8. Landscape Plan & Details
- P9. Photometrics & Lighting
- P10. Construction Management
- P11. Floor Plan & Area Floor Plan
- P12. Elevations
- P13. Renderings & Perspectives

40 West Commercial St - PL-001042-2020

Ann Machado <amachado@portlandmaine.gov>

Wed, Jun 10, 2020 at 12:54 PM

To: Christian Roadman <croadman@portlandmaine.gov>

Following up on my original email to you.

I went back through my original email and have indicated anything that still needs to be addressed in red.

The maximum building length allowed for a conditional use is 450', but only 300 feet of the building can be higher than 55 feet. According to the zoning analysis sheet the building is 444' (I scaled it at around 404 '). The elevations show that 300 feet of the building is 73'10" tall, but the rest of it is under 55 feet, so this requirement is being met.

Please let me know if you need anything else.

Ann

Ann Machado
Zoning Administrator
Permitting and Inspections Department
City of Portland, Maine
(207) 874-8709
amachado@portlandmaine.gov

On Tue, Apr 14, 2020 at 4:17 PM Ann Machado <amachado@portlandmaine.gov> wrote:

Christian -

I meant to get you these notes after the Dev. Rev, meeting last week.

A cold Storage Facility is listed as a Conditional Use in section 14-319. Do they also have a Conditional Use Application to go before the Planning Board? **I'm not seeing a Conditional Use Application in Energov.**

Regarding the Zoning Analysis Table I noticed a few discrepancies.

- For minimum lot size since this is a Conditional Use a minimum of 5 acres is required. They are more than meeting it but I wanted the table to be accurate.
- Maximum Building Length for a conditional use - *300ft for buildings or portions of buildings exceeding the maximum applicable height allowed under the permitted use. The part of the building that exceeds 55' of height is 300 feet. The rest of the building is below 55' - OK*
- Have they provided information to show what the average grade is to determine the height? **I still don't see any calculation for how they have determined average grade. They need to clearly indicate the average grade on the elevations because it is close.**

Under section 14-320.2(b) (1)(b) they are required to have a determination from the FAA that structures and equipment will not exceed the applicable height guidelines for the runway approach etc. Also have they provided the view corridor of 90 feet for the lot? **Have both of these been verified?**

They are all set for the Shoreland Zone sections 14-449(a) - no setback required for structures in the WPDZ zone, 14-449(c) - the clearing and removal standards for vegetation do not apply to the WPDZ zone, and 14-449(j) roads and driveways does not have a minimum setback in the WPDZ zone.

Flood Plain. Looking at Plan C-100, part of the building is within the Flood Zone A2 (EL 10) as is the access road. Since the building is in the flood zone, besides the Flood Hazard Development Application, they will need to provide a Flood Hazard Development Permit for New Construction which is a two part application and requires either an elevation certificate or flood proofing certificate. This can be provided when the building permit is applied for. Under section 14-450.8(g) new nonresidential construction in a A2 zone the lowest floor needs to be elevated above the base flood elevation of 10 feet and or be floodproofed to at least two feet above base flood elevation. **The flood zone is not shown on version 2 of Plan C-100.**

[Quoted text hidden]

40 West Commercial St - PL-001042-2020

Ann Machado <amachado@portlandmaine.gov>

Tue, Apr 14, 2020 at 4:17 PM

To: Christian Roadman <croadman@portlandmaine.gov>

Christian -

I meant to get you these notes after the Dev. Rev. meeting last week.

A cold Storage Facility is listed as a Conditional Use in section 14-319. Do they also have a Conditional Use Application to go before the Planning Board?

Regarding the Zoning Analysis Table I noticed a few discrepancies.

- For minimum lot size since this is a Conditional Use a minimum of 5 acres is required. They are more than meeting it but I wanted the table to be accurate.
- Maximum Building Length for a conditional use - *300ft for buildings or portions of buildings exceeding the maximum applicable height allowed under the permitted use.* They are using 450 feet.
- Have they provided information to show what the average grade is to determine the height?

Under section 14-320.2(b) (1)(b) they are required to have a determination from the FAA that structures and equipment will not exceed the applicable height guidelines for the runway approach etc. Also have they provided the view corridor of 90 feet for the lot?

They are all set for the Shoreland Zone sections 14-449(a) - no setback required for structures in the WPDZ zone, 14-449(c) - the clearing and removal standards for vegetation do not apply to the WPDZ zone, and 14-449(j) roads and driveways does not have a minimum setback in the WPDZ zone.

Flood Plain. Looking at Plan C-100, part of the building is within the Flood Zone A2 (EL 10) as is the access road. Since the building is in the flood zone, besides the Flood Hazard Development Application, they will need to provide a Flood Hazard Development Permit for New Construction which is a two part application and requires either an elevation certificate or flood proofing certificate. This can be provided when the building permit is applied for. Under section 14-450.8(g) new nonresidential construction in a A2 zone the lowest floor needs to be elevated above the base flood elevation of 10 feet and or be floodproofed to at least two feet above base flood elevation.

I'm happy to talk with you about any of these issues/concerns.

Ann Machado
Zoning Administrator
Permitting and Inspections Department
City of Portland, Maine
(207) 874-8709
amachado@portlandmaine.gov

40 West Commercial Street - Initial Traffic Comment

Tom Errico <thomas.errico@tylin.com>

Wed, Apr 22, 2020 at 8:05 AM

To: Christian Roadman <croadman@portlandmaine.gov>

Cc: Michael Tremblay <mtremblay@portlandmaine.gov>, Bruce Hyman <bhyman@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>

Hi Christian – I have reviewed the application materials and offer the following initial traffic comment.

- The applicant shall conduct a trip generation analysis for the entire IMT site over the last 10 years. The site does not have a Traffic Movement Permit and incremental development considerations may cumulatively trigger the need for a TMP. I did look at prior applications and it does appear that a TMP will be required.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director

TYLIN INTERNATIONAL

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40 West Commercial Street - Cold Storage Facility follow-up comments

Mike Tremblay <mtremblay@portlandmaine.gov>

Thu, May 28, 2020 at 1:21 PM

To: Christian Roadman <croadman@portlandmaine.gov>

Cc: Doug Roncarati <dar@portlandmaine.gov>

Christian,

I have reviewed the response to comment memo for 40 West Commercial Street, and we discussed this week at the DevRev DPW session. I am going to paraphrase Doug Roncarati's comments as best as possible but I believe he was going to follow up separately as soon as tomorrow, when he returns to the office.

- The site continues to propose a very wide driveway width of about 104 feet. Wide driveways present a safety hazard, especially for bicycle traffic on West Commercial Street eastbound and any pedestrian traffic on the south side of West Commercial Street, as it allows all vehicles to make turns at higher speeds. The driveway width also adds additional impervious surface to the site, which already has a great deal of impervious surface. The entirety of this width, at the edge of the ROW, is justified if it is required that entering and exiting vehicles must be able to maneuver simultaneously. This driveway width could be reduced significantly if truck volumes are low enough that a conflict would be rare, and traffic would be able to yield to one another. In this case, a truck would be able to cross the centerline in the driveway in order to make a maneuver into/out of a narrower driveway opening without much conflict. The applicant should provide estimates of the number of trucks that will be entering and exiting the site during peak hours and over the course of a given day.

- According to the turning templates, there are areas of proposed pavement that are not needed for any turning movements. The applicant should clarify the purpose of these areas and why they must be hardscaped. Any planned use of these areas should be documented in the site plan. A sketch of the areas of question is included at the bottom of this email.

- A waiver of Technical Manual Section 1.14 for parking space dimensions and drive aisle width is required for the truck parking area. The Applicant has justified the space dimensions and drive aisle width for this area. This waiver is supported by DPW after review of turning templates.

- The Applicant notes that the rear access road is required for fire access. A brief discussion with Life Safety indicated that this access road would be beneficial, but not required, in the case of an emergency. This should be confirmed with Life Safety. If this road is not required, DPW recommends that it be removed to reduce the impervious area on-site.

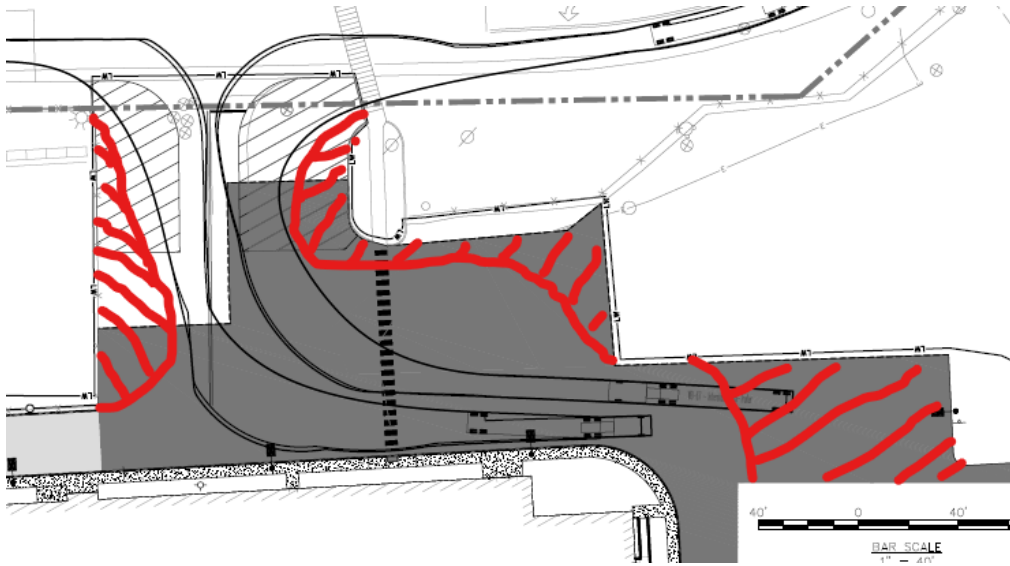
- The city requires a robust stormwater maintenance agreement with the Applicant. The City will not maintain the development's equipment in any way, and this equipment is essential to ensuring that pollutants from the facility and parking lots do not enter Casco Bay untreated/undertreated.

- The City will require an approved dewatering plan before issuance of a building permit, as the site is a VRAP site and any groundwater encountered may be contaminated and should not enter the City's stormwater system or Casco Bay untreated. DPW understands that the Applicant does not expect to encounter groundwater; however, given the possible presence of contaminants in the groundwater, a more robust dewatering plan is required.

- All construction related deliveries should access the site from 295 via the Veterans Bridge/West Commercial Street or Franklin Street/Commercial Street. This should be noted in the CM plan.

- An updated CM plan should include an adjusted construction schedule.

Thanks,
Mike



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40 West Commercial Street - Cold Storage Facility comments

Christian Roadman <croadman@portlandmaine.gov>

Thu, Apr 23, 2020 at 1:10 PM

To: Mike Tremblay <mtremblay@portlandmaine.gov>

Cc: Bruce Hyman <bhyman@portlandmaine.gov>, Tom Errico <thomas.errico@tylin.com>

If I'm understanding, what's below is where we've landed. Please let me know if I've misunderstood / misrepresented.

DPW Comments:

- There is no sidewalk proposed along the project frontage. A sidewalk waiver is required. The waiver requirements are outlined in Section 14-501 of the City Code. If a sidewalk is provided, then an acceptable, ADA-accessible driveway crossing must also be provided. If a sidewalk is not provided, a contribution (separate from required impact fees) will be sought for nearby sidewalk and/or path facilities.
- The driveway opening onto West Commercial Street is much larger than the maximum permitted under the Technical Manual (30 feet). DPW understands that this facility will require right turns both into and out of the site by large vehicles, and has reviewed turning templates from a previous submission that justify the large driveway opening. The Applicant must apply for a driveway width waiver as part of their application. Updated turning templates showing the design vehicle entering and exiting the site using the newest site plan should be submitted for DPW review.
- While DPW understands that a wide driveway is required, efforts should be made to guide smaller vehicles entering the site and discourage fast turns, which can be unsafe, especially for pedestrians crossing the driveway or crossing West Commercial Street. The current site plan shows a hatched striping that limits the northbound direction of the driveway to 24 feet. DPW suggests that this treatment be extended, narrowing the drive lanes in each direction to 12 feet. The applicant should also consider using a more durable and tactile material than paint, such as scored concrete, as paint will wear out quickly and does not provide any feedback to motorists.
- Efforts should be taken to reduce the amount of impervious surface on the site plan.
- The 104-foot width of the end of the driveway, closest to the proposed structure, should be justified or reduced.
- The passenger parking area has 20-foot parking stall lengths. These stall lengths should be justified, or reduced to 18 feet.
- The area on the northeast side of the site, where the crosswalk is shown to be re-striped, adds additional pavement south of existing pavement to remain. The applicant should specify the use of the existing-to-remain portions of the site with respect to the proposed project, and make efforts to reduce pavement area where possible. In this location, the crosswalk appears to cross a swath of existing and proposed pavement that is about 83 feet wide.
- The proposed site plan shows about 25 truck parking spaces, each measuring about 25x55, with a 91-foot drive aisle for a total pavement width of 201 feet. DPW does not have standards for truck parking such as this and would support a waiver for parking space and drive aisle size if they can be justified. While parking stall length appears appropriate at 55 feet, the stall width seems excessive, over 2.5x the size of a typical passenger vehicle stall. The drive aisle serves as a maneuvering area and extra width is justifiable, but the Applicant should provide justification (turning movements or otherwise) for the size of the drive aisle and stall width. Large vehicles access narrower loading docks in the urban areas of Portland with significantly less maneuvering space. Any reduction in these dimensions can help reduce the amount of impervious surface at this site, which would in turn reduce effects on stormwater, reduce snow removal burden, reduce heat island effects, and would likely reduce project costs significantly.
- There is a 24-foot access aisle provided around the back of the building, which appears to be a secure area leading to the IMT site east of the project site. This access aisle has entrances from both the passenger vehicle parking lot and the heavy vehicle parking lot; however, it does not appear that the access road is designed to accommodate heavy vehicles turning into or out of the access road. The access road also appears to be redundant behind the proposed cold storage facility; any vehicle entering at the western gate could presumably also do so at the eastern gate. Eliminating this access road may eliminate 17,000+ SF of impervious surface and several drainage structures. The applicant should justify the purpose of this drive aisle or make design changes accordingly.
- The project site includes two van-accessible parking spaces on the west side of the site, which adequately meet requirements based on site's passenger vehicle parking supply. Truck parking spaces need not figure into the ratio of required accessible parking spaces, per ADA. The accessible spaces should be designed to ADA standards (8' x 18' minimum, 8-foot

buffer (for van spaces), maximum 2% slope in all directions within the buffer).

- The design of ADA ramps is not noted on the Grading and Drainage plans, nor is a detail provided. A curb ramp detail is requested for all ramp types on the site.

- The large area of loam and seed south of the proposed structure and north of the access road appears to be unprogrammed space. The applicant should consider using this area for storage of stormwater and pretreatment prior to the R-tank, and/or using this area to plant trees to screen the blank south-facing wall from the waterfront. Tree species selection and location should be coordinated with the City Arborist, Jeff Tarling.

--

Christian Roadman
Planner
207.874.8984

Planning & Urban Development Department
389 Congress Street
Portland, Maine 04101

[Quoted text hidden]

40 West Commercial Street - Cold Storage Facility comments

Mike Tremblay <mtremblay@portlandmaine.gov>

Thu, Apr 23, 2020 at 6:46 PM

To: Christian Roadman <croadman@portlandmaine.gov>

Yes and no. The turn templates do not show that the amount of pavement along the driveway is necessary, especially at its widest part. I may simply need more images turns. Some comments on the runs shown:

- Runs should show trucks entering and exiting the site to justify the width of the driveway and inform the locations of alternate pavement material (or hatch markings, as previously proposed). A vehicle existing the parking area to the driveway would also be helpful to see.
- Runs should show that all proposed pavement is necessary. See (very crude) image below. Currently, it is difficult to determine why the blue area is needed. Conversely, if a truck used this width (red line), they may be able to avoid using as much of the opposite side of the double yellow centerline.
- I think it's appropriate to assume that, within the site, entering and exiting vehicles will yield to one another. The site design shouldn't assume that two turning vehicles should be able to pass one another in opposite directions. The applicant should let us know their design controls/assumptions about how vehicles interact within the site.
- Entering the parking spaces, the run shown does clarify that the drive aisle width appears to be useful. I do not think the model entering the space in a crooked manner justifies a 25-foot space width, however. An extra forward-backward maneuver can likely correct this angle.
- The provided run does not show how a vehicle would enter and exit a space south of the deadhead area (the wider area where the truck maneuvers into before backing up. So I'm actually curious how any of the spaces work south of the one they back into; it appears as though each space gets progressively more difficult as you move southward.

Hope this helps.

-Mike

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On Thu, Apr 23, 2020 at 5:32 PM Christian Roadman <croadman@portlandmaine.gov> wrote:

Hi Mike,

I found the attached turning template as an attachment to another document in the application. Does it negate (or change or reaffirm) your request for one re: parking stalls?

Please let me know - thanks!

Christian

--

Christian Roadman
Planner
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Planning & Urban Development Department
[389 Congress Street](#)
[Portland, Maine 04101](#)

On Thu, Apr 23, 2020 at 1:29 PM Christian Roadman <croadman@portlandmaine.gov> wrote:
Super, thanks!

--

Christian Roadman
Planner
207.874.8984

Planning & Urban Development Department
[389 Congress Street](#)
[Portland, Maine 04101](#)

On Thu, Apr 23, 2020 at 1:16 PM Mike Tremblay <mtremblay@portlandmaine.gov> wrote:
Looks good, thanks!

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On Thu, Apr 23, 2020 at 1:10 PM Christian Roadman <croadman@portlandmaine.gov> wrote:
If I'm understanding, what's below is where we've landed. Please let me know if I've misunderstood / misrepresented.

DPW Comments:

- There is no sidewalk proposed along the project frontage. A sidewalk waiver is required. The waiver requirements are outlined in Section 14-501 of the City Code. If a sidewalk is provided, then an acceptable, ADA-accessible driveway crossing must also be provided. If a sidewalk is not provided, a contribution (separate from required impact fees) will be sought for nearby sidewalk and/or path facilities.

- The driveway opening onto West Commercial Street is much larger than the maximum permitted under the Technical Manual (30 feet). DPW understands that this facility will require right turns both into and out of the site by large vehicles, and has reviewed turning templates from a previous submission that justify the large driveway opening. The Applicant must apply for a driveway width waiver as part of their application. Updated turning templates showing the design vehicle entering and exiting the site using the newest site plan should be submitted for DPW review.

- While DPW understands that a wide driveway is required, efforts should be made to guide smaller vehicles entering the site and discourage fast turns, which can be unsafe, especially for pedestrians crossing the driveway or crossing West Commercial Street. The current site plan shows a hatched striping that limits the northbound direction of the driveway to 24 feet. DPW suggests that this treatment be extended, narrowing the drive lanes in each direction to 12 feet. The applicant should also consider using a more durable and tactile material than paint, such as scored concrete, as paint will wear out quickly and does not provide any feedback to motorists.

- Efforts should be taken to reduce the amount of impervious surface on the site plan.

- The 104-foot width of the end of the driveway, closest to the proposed structure, should be justified or reduced.

- The passenger parking area has 20-foot parking stall lengths, These stall lengths should be justified, or reduced to 18 feet.

- The area on the northeast side of the site, where the crosswalk is shown to be re-striped, adds additional pavement south of existing pavement to remain. The applicant should specify the use of the existing-to-remain portions of the site with respect to the proposed project, and make efforts to reduce pavement area where possible. In this location, the crosswalk appears to cross a swath of existing and proposed pavement that is about 83 feet wide.

- The proposed site plan shows about 25 truck parking spaces, each measuring about 25x55, with a 91-foot drive aisle for a total pavement width of 201 feet. DPW does not have standards for truck parking such as this and would support a waiver for parking space and drive aisle size if they can be justified. While parking stall length appears appropriate at 55 feet, the stall width seems excessive, over 2.5x the size of a typical passenger vehicle stall. The drive aisle serves as a maneuvering area and extra width is justifiable, but the Applicant should provide justification (turning movements or otherwise) for the size of the drive aisle and stall width. Large vehicles access narrower loading docks in the urban areas of Portland with significantly less maneuvering space. Any reduction in these dimensions can help reduce the amount of impervious surface at this site, which would in turn reduce effects on stormwater, reduce snow removal burden, reduce heat island effects, and would likely reduce project costs significantly.

- There is a 24-foot access aisle provided around the back of the building, which appears to be a secure area leading to the IMT site east of the project site. This access aisle has entrances from both the passenger vehicle parking lot and the heavy vehicle parking lot; however, it does not appear that the access road is designed to accommodate heavy vehicles turning into or out of the access road. The access road also appears to be redundant behind the proposed cold storage facility; any vehicle entering at the western gate could presumably also do so at the eastern gate. Eliminating this access road may eliminate 17,000+ SF of impervious surface and several drainage structures. The applicant should justify the purpose of this drive aisle or make design changes accordingly.

- The project site includes two van-accessible parking spaces on the west side of the site, which adequately meet requirements based on site's passenger vehicle parking supply. Truck parking spaces need not figure into the ratio of required accessible parking spaces, per ADA. The accessible spaces should be designed to ADA standards (8' x 18' minimum, 8-foot buffer (for van spaces), maximum 2% slope in all directions within the buffer).

- The design of ADA ramps is not noted on the Grading and Drainage plans, nor is a detail provided. A curb ramp detail is requested for all ramp types on the site.

- The large area of loam and seed south of the proposed structure and north of the access road appears to be unprogrammed space. The applicant should consider using this area for storage of stormwater and pretreatment prior to the R-tank, and/or using this area to plant trees to screen the blank south-facing wall from the waterfront. Tree species selection and location should be coordinated with the City Arborist, Jeff Tarling.

--

Christian Roadman
Planner
207.874.8984

Planning & Urban Development Department
389 Congress Street
Portland, Maine 04101

On Thu, Apr 23, 2020 at 12:57 PM Mike Tremblay <mtremblay@portlandmaine.gov> wrote:

Thank's Bruce.

Regarding the 2nd comment: that makes sense. Christian, can you make that slight adjustment to my comment(s) or would you like me to resend the list with the change for your copy/paste convenience?

Mike Tremblay, P.E.
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On Thu, Apr 23, 2020 at 12:52 PM Bruce Hyman <bhyman@portlandmaine.gov> wrote:

Regarding this topic: There is no sidewalk proposed along the project frontage. A sidewalk waiver is required. The waiver requirements are outlined in Section 14-501 of the City Code. If a sidewalk is provided, then an acceptable, ADA-accessible driveway crossing must also be provided. (Tom/Bruce, I think one of you noted an extensive history with this issue. Feel free to delete this comment if it's been resolved elsewhere; however, a waiver still seems appropriate even if it'll be granted based on some kind of previous agreement.)

I think we are resigned to not having a sidewalk along the IMTs frontage. That said we may want to consider having them make a contribution to near-area sidewalk/pathway facilities that will support pedestrian and bicyclist activity that will be generated by this site *in lieu* of a sidewalk [we did this with Phin Sprague's project just west of here]. I don't know what this category will be for Impact Fees (Industrial I imagine) but a sidewalk is a Site Plan requirement above/beyond Impact Fees. We will be needing money for the W Comm St pathway Ph III east of Beach Street which would be the likely destination for pedestrians to/from the site. I do imagine they would still require to go through the waiver process. I don't have a number in mind yet for a potential contribution.

For others, such as this one: - *Efforts should be taken to reduce the amount of impervious surface on the site plan. For example, the 104-foot width of the end of the driveway, closest to the proposed structure, does not seem necessary.* I would stick to the same format as similar comments below and request justification separating out the example of the 104' driveway from the statement of fact: "Efforts should be taken to reduce the amount of impervious surface on the site plan."

Bruce

On Thu, Apr 23, 2020 at 12:35 PM Mike Tremblay <mtremblay@portlandmaine.gov> wrote:

Christian (including Bruce and Tom to answer my highlighted question below):

Here are my comments for the cold storage facility. A lot of them come down to "reduce the amount of pavement". I understand this is an industrial site and it's a lot easier to move trucks around if there are no obstacles, but there are environmental impacts (stormwater and heat island effects) associated with so much pavement. Stormwater effects are being mitigated with their treatment system, but less water that needs to be treated would be better. I also lightly touch on the fact that the south wall of the building is blank in my comment about possibly adding trees, but building design is so not my purview, so I'm hoping some kind of design review applies. If not, I'd love if someone at planning could suggest a nicer treatment of that wall (if oodles of trees can't be planted to block it from view) even if it's just a suggestion and not a requirement. My \$0.02 there.

- There is no sidewalk proposed along the project frontage. A sidewalk waiver is required. The waiver requirements are outlined in Section 14-501 of the City Code. If a sidewalk is provided, then an acceptable, ADA-accessible driveway crossing must also be provided. (Tom/Bruce, I think one of you noted an extensive history with this issue. Feel free to delete this comment if it's been resolved elsewhere; however, a waiver still seems appropriate even if it'll be granted based on some kind of previous agreement.)
- The driveway opening onto West Commercial Street is much larger than the maximum permitted under the Technical Manual (30 feet). DPW understands that this facility will require right turns both into and out of the site by large vehicles, and has reviewed turning templates from a previous submission that justify the large driveway opening. The Applicant must apply for a driveway width waiver as part of their application. Updated turning templates showing the design vehicle entering and exiting the site using the newest site plan should be submitted for DPW review.
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- The large area of loam and seed south of the proposed structure and north of the access road appears to be unprogrammed space. The applicant should consider using this area for storage of stormwater and pretreatment prior to the R-tank, and/or using this area to plant trees to screen the blank south-facing wall from the waterfront. Tree species selection and location should be coordinated with the City Arborist, Jeff Tarling.

Please let me know if you have any questions.

Thanks,
Mike

Mike Tremblay, P.E.
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Bruce Hyman
Transportation Program Manager

Department of Planning & Urban Development
389 Congress Street
Portland, Maine 04101
(207) 874-8717 phone

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<http://www.portlandmaine.gov/1363/Transportation-Division>
<http://www.portlandmaine.gov>

Yes! Transportation's Good Here



MEMORANDUM

TO:	Christian Roadman, Planner	DATE:	5/20/2020
FROM:	Michael Guethle, PE	PROJECT NO.:	20308A
SUBJECT:	40 W Commercial Street – Level III Site Plan, PL-001042-2020		

Wright-Pierce has reviewed the initial Level III Site Plan Application information provided for the redevelopment at 40 W Commercial Street, as defined in the above subject line. The proposed project is located on a 7.4+/- acre site, part of the International Marine Terminal. The proposed project includes redevelopment of a former natural gas distribution facility with a Cold Storage Facility to support the International Marine Terminal (IMT) operations. Appurtenant portions of the site development include utility connections, stormwater management, parking, pedestrian access, and landscaping.

Documents Reviewed by Wright-Pierce:

- Level III Site Plan application, dated (most recent) May 17, 2020
- Engineering Permitting Plans, uploaded (most recent) May 18, 2020
- Comment Response Letter, dated May 15, 2020

Comments:

For stormwater treatment, Level III Site Plan applications with the City of Portland must submit a stormwater plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules. This includes conformance with the Basic, General, and Flooding Standards (Ref: Technical Manual, Section 5. II. Applicability in Portland. C. a.; and Ref: City of Portland Code of Ordinances Sec. 14-526. Site Plan Standards, (b). 3. b.)

- 1) Basic Standard: Per the City's Technical Manual *Portland Stormwater Management Standards And Maine Dep Chapter 500 Stormwater Management*, an Erosion & Sediment Control management plan, notes, and details per the Chapter 500 Rules must be provided to meet the Basic Standard.

- a. Erosion and Sedimentation Control best practices were observed on the updated Grading, Drainage, and Erosion Control Plan and associated Details. An Inspection, Maintenance, and Housekeeping Plan has been provided with the erosion details and notes. No further action necessary.
- 2) General Standard: The applicant has provided information regarding the size and scope of the project, and has indicated the project is subject to the General Standard under the requirements of the Site Location of Development Act (SLODA). The project is being reviewed under the redevelopment guidelines and requirements.
 - a. The applicant has provided an impact analysis to compare pre-development and post-development land use pollutant rankings under MaineDEP redevelopment guidelines. The written analysis indicated that the site revisions did not change the general standard application; the proposed development has pollutant ranking between 0 and 1 greater than the existing site, and is therefore required to treat 60% of the proposed site's disturbed surface area.
 - i. An updated summary of pollutant rankings was provided and reviewed, and the proposed pollutant rankings are agreed to. No further action necessary.
 - b. High-pollutant surface areas should be prioritized for stormwater treatment under the redevelopment standard.
 - i. The revised stormwater treatment system provides treatment for 85% of the redeveloped area, including all of the areas with pollutant ranking 4 (excepting some fire access road, which is anticipated to carry less pollution than regular roadways). While redevelopment calculations state 61% of the site redeveloped area is receiving runoff treatment, it is apparent the 85% value mentioned in the cover letter is correct. No further action necessary.
 - c. An executed maintenance contract for the BMP systems is required. Maintenance agreements may be provided as a condition of approval.
- 3) R-Tank and Stormwater Filter
 - a. A letter from the manufacturer(s) stating the proposed project was designed in accordance with the MaineDEP standards has been provided.

- b. Site grading proposes no access of flood waters to catch basins in the identified 100-year flood elevation, no further action necessary.
 - c. R-Tank is designed with consistent elevations in HydroCAD, Site Plans, and Details. Design has been updated to confirm layout of R-Tank unit, no further action necessary.
 - d. R-Tank location has been relocated to an emergency entrance. The applicant has indicated the anticipated loading has been coordinated with the manufacturer, and the provided products were selected based on anticipated loading.
 - e. A note indicating a valve at the stormwater outlet has been updated to confirm additional product information, no further action necessary.
 - f. Treatment filter system has been modified to a StormFilter device. The updated design, as well as inspection and maintenance requirements for the StormFilter and R-Tank system, have been provided. We agree the StormFilter provides treatment for 60% of the redeveloped area; provides a water quality volume prioritizing treatment for impervious surfaces; and provides maintenance requirements in accordance with the manufacturer, and MaineDEP. No further action necessary.
- 4) Flooding Standard: The applicant has requested a waiver to the flooding standard, on the basis that the project conveys flows to a tidally influenced waterbody. The basis of this waiver has been reviewed with the updated site plan modifications, and is justified and supported by the reviewer.
- 5) Grading and Drainage:
- a. Typical details, indicating a maximum 2% cross-slope for crosswalks have been provided. No further action necessary.
- 6) Utility Connections
- a. Ability to serve letters have not been provided for utilities impacted by the proposed project but have been requested by the applicant for applicable utilities. The applicant has indicated that ability to serve letters will be submitted to Planning upon receipt.

- b. Planting impacts to utilities: Several plantings are located over underground utilities near the transformer and generator pad. It is appreciated that these areas require screening. Applicant has confirmed the proposed plantings include shallow root systems and have been programmed to avoid underground utilities in the adjacent area. No further action necessary.

TO:	Christian Roadman, Planner	DATE:	4/14/2020
FROM:	Michael Guethle, PE	PROJECT NO.:	20308A
SUBJECT:	40 W Commercial Street – Level III Site Plan, PL-001042-2020		

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Documents Reviewed by Wright-Pierce:

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- Engineering Permitting Plans, uploaded (most recent) March 13, 2020

Comments:

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- 1) Basic Standard: Per the City's Technical Manual *Portland Stormwater Management Standards And Maine Dep Chapter 500 Stormwater Management*, an Erosion & Sediment Control management plan, notes, and details per the Chapter 500 Rules must be provided to meet the Basic Standard.

- a. Erosion and Sedimentation Control best practices were observed on the Erosion and Sediment Control Plan and associated Details. An Inspection, Maintenance, and Housekeeping Plan has been provided with the erosion details and notes.
 - i. Catch basin inlet protection should include catch basin throat protection where applicable.
- 2) General Standard: The applicant has provided information regarding the size and scope of the project, and has indicated the project is subject to the General Standard under the requirements of the Site Location of Development Act (SLODA). The project is being reviewed under the redevelopment guidelines and requirements.
 - a. The applicant has provided an impact analysis to compare pre-development and post-development land use pollutant rankings under MaineDEP redevelopment guidelines. The written analysis indicated that the proposed development had a lower pollutant ranking than the existing site and is therefore required to treat 60% of the proposed site's disturbed surface area.
 - i. A summary of pollutant rankings was provided and reviewed, and the proposed pollutant rankings are agreed to.
 - b. High-pollutant surface areas should be prioritized for stormwater treatment under the redevelopment standard.
 - i. The Applicant has provided a summary indicating that the majority of treated area is impervious. Please provide a discussion on how much of the surfaces with pollutant ranking 4 are receiving treatment, and a statement on site practicality requiring treatment of lesser-ranked surfaces.
 - c. An executed maintenance contract for the BMP systems is required. Maintenance agreements may be provided as a condition of approval.
- 3) R-Tank and Jellyfish Filter
 - a. A letter from the manufacturer(s) stating the proposed project was designed in accordance with the MaineDEP standards is required for proprietary treatment devices. Please provide this information.

- b. Site grading proposes no access of flood waters to catch basins in the 100-year flood elevation, no further action necessary.
 - c. R-Tank is designed with consistent elevations in HydroCAD, Site Plans, and Details. Please provide the number of R-Tank modules (length by width) on the Grading, Drainage Plan, and Erosion Control Plan to confirm the proposed layout matches the plan. Module height has been provided.
 - d. R-Tank location appears to be within heavy truck area. Information on minimum depth of cover is proposed on the detail, but is not noted to meet loading criteria of the proposed trucks. Please provide information from the manufacturer indicating that the proposed system can sustain expected traffic loading.
 - e. A note indicating a valve at the stormwater outlet was provided, but was not observed. Please provide a detail for the stormwater outlet restrictor, or confirm where the detail is located in the plan set.
 - f. Plans call for a 24" Jellyfish filter outlet, and the HyrdroCAD shows a 30" outlet. Please review.
- 4) Flooding Standard: The applicant has requested a waiver to the flooding standard, on the basis that the project conveys flows to a tidally influenced waterbody. The basis of this waiver is justified and supported by the reviewer.
- 5) Grading and Drainage:
- a. Applicant has noted that Maine Construction General Permit is required for the project due to the extent of grading.
 - b. Applicant has noted the Owner is a participant in the VRAP through the MaineDEP, and that soil management plans will need to be developed and approved through the MaineDEP.
 - c. Typical details, or a note on the grading plan, should show a maximum 2% cross-slope for crosswalks.
- 6) Utility Connections
- a. Ability to serve letters have not been provided for utilities impacted by the proposed project, but have been requested by the applicant for applicable utilities. The

applicant has indicated that ability to serve letters will be submitted to Planning upon receipt.

- b. Standard design for the water and fire system has been provided. Adherence to PWD standards is typically provided by the water utility for water connections, and would be addressed in an ability to serve letter and acceptance through PWD.
- c. Standard design for the electrical and gas and electric utilities has been provided.
- d. Planting impacts to utilities:
 - i. Several plantings are located over underground utilities near the transformer and generator pad. It is appreciated that these areas require screening. Please confirm how the design incorporates mitigation or prevention for roots impacting underground utilities, while also providing required screening.

Question re: 40 Commercial Street Cold Storage, SLOD review

Michael Guethle <michael.guethle@wright-pierce.com>
To: Christian Roadman <croadman@portlandmaine.gov>

Fri, Jun 19, 2020 at 9:45 AM

Thanks Christian! Yes, we reviewed for soil impacts for the site portion of the facility in our review. Items covered in our review included:

1. There is likely disturbance of urban fill or other contaminants associated with the historical industrial uses of the site related to railroad and natural gas. The owner is under an existing VRAP permit (reviewer comment 5b, comments dated 4/14/2020), and the applicant has identified this in their application. The applicant has indicated soil management plans will be developed under a separate permit application through the MaineDEP.
2. The applicant's engineer has designed and stamped traveled surfaces on Sheet C-202, and has indicated specific thicknesses for "heavy duty" and "standard duty" pavements and base gravels. Applicant has relocated critical stormwater treatment infrastructure out of major traveled ways and confirmed bearing capacity and application with manufacturer (reviewer comment 3d, comments dated 5/20/2020).
3. Structural aspects of soils related to the building were not reviewed in our deliverable as structural building elements are not typically included in our reviews. These can be reviewed by our office if requested.

Best,

-Mike

Michael A. Guethle, PE

Wright-Pierce | Lead Project Engineer
Direct 207.319.1512 | **Office** 207.761.2991

[Quoted text hidden]

Notice: Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

Cold Storage

Jeff Tarling <jst@portlandmaine.gov>

Wed, Apr 8, 2020 at 12:15 PM

To: Christian Roadman <croadman@portlandmaine.gov>

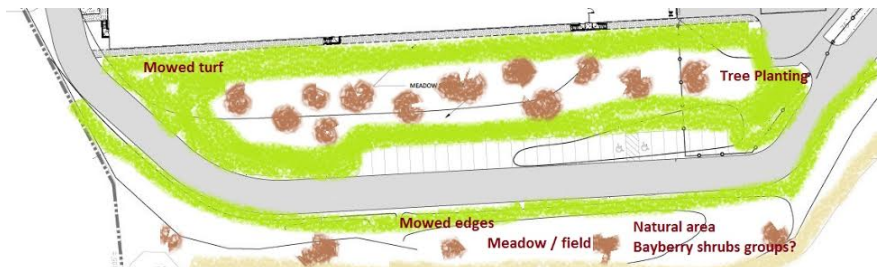
Hi Christian -

Good comments today on the Cold Storage landscape...

Ideally would like to see a grove of trees on the water side to help the facility from the bridge, South Portland and the harbor. Knowing they will want to have a mowed lawn around the building and pavement edges the grove of trees would be in the meadow area. Tree types could be White Spruce, Serbian Spruce, River Birch, Red Oak suggested.

Ideally they would want to conduct yearly mowing to keep the space from growing into brush. (see attached suggested pics)
Along the water edge it would be recommended to plant Bayberry shrubs in groups of 3, 5, 7 spaced out along the shoreline. In respect to being in the Shoreland Zone, although this section was somewhat exempt in the neighboring projects, having a 10 -15' buffer along the edge vs mowing to the edge would be recommended. Yearly mowing could be part of the regular maintenance plan. Bayberry shrubs were noticed growing on or near the site naturally early on when the IMT and the Portland Yacht Services.

Building shading / color options - we know White is a preferred color for cold storage but any cool off white, light blue would be helpful.





Wasn't sure if they could use a darker color to match the skyline, thus showing blue & green !

Jeff Tarling
City Arborist - City of Portland Maine
Parks, Recreation & Facilities Department
Forestry & Horticulture
[212 Canco Road - Suite A](#)
[Portland, ME. 04103](#)
(207) 808-5400
jst@portlandmaine.gov

Christian Roadman <croadman@portlandmaine.gov>

40 West Commercial (Hydrant & Solar Spacing)

Jason Grant <jgrant@portlandmaine.gov>

Mon, Jun 1, 2020 at 8:23 AM

To: Christian Roadman <croadman@portlandmaine.gov>

Christian,

The hydrant location looks good, For the solar panels I think that it's enough info for it to be approved at this point. It is hard to tell for sure that they are meeting all of the codes with this limited information but it appears they are putting in the required pathway so we can review the rest at the building permit phase. So Fire approves the changes.

Jason Grant CFI-2, CFPE
Life Safety CEO / Plan Reviewer
Permitting and Inspections Department
City of Portland
[389 Congress Street Rm 315](#)
[Portland, Maine 04101](#)
Phone:(207) 756-8187

[Quoted text hidden]

40 West Commercial Street

Jason Grant <jgrant@portlandmaine.gov>

Wed, Apr 15, 2020 at 3:50 PM

To: Christian Roadman <croadman@portlandmaine.gov>

Christian,

I only have 2 comments for 40 West Commercial Street.

1. Add a hydrant in the location shown on the plans.
2. Any photovoltaic arrays will need to meet the requirements of NFPA 1 Fire Code 2018 edition for roof coverage and other applicable sections.

Other than that I am good with everything.

Jason Grant CFI-2, CFPE
Life Safety CEO / Plan Reviewer
Permitting and Inspections Department
City of Portland
[389 Congress Street Rm 315](#)
[Portland, Maine 04101](#)
Phone:(207) 756-8187



C-100 site plan hydrant location.pdf

289K

1500 WEST COMMERCIAL STREET
U.S. ROUTE 1A
PORTLAND, OREGON 97201

50' WEST OUP LOCATED

HIGHEST ANNUAL TIDE LINE ELEVATION 7.2 HOD 1929

EXISTING LANDSCAPE PLANS

CONCRETE CURB (TYP)

WALKWAY STRIP (TYP)

LANDSCAPE PLANS

4 FOOT PRECASTING GATE

24 FOOT GATE

CONCRETE PAVEMENT

LAND NOW OR FORMERLY OWNED BY NEW YARD, LLC 30887/247

WEST COMMERCIAL STREET U.S. ROUTE 1A

PERMIT SET - NOT FOR CONSTRUCTION

CHECK MAPS & DATA BEFORE USING



Planning and Urban Development Department Planning Division



Subject: WPDZ Design Review – 40 West Commercial (Cold Storage)
Written by: Caitlin Cameron, Urban Designer
Date of Review: Friday, May 22 2020

The project at 40 West Commercial Street – Cold Storage Facility – was reviewed according to the adopted WPD Zone performance standards by Caitlin Cameron, Urban Designer and Christian Roadman, Planner.

Design Review Comments: *(questions and unmet standards in red)*

Sec. 14-320.3 Performance Standards

(k) Lighting – Applicant has provided a photometric plan, cut sheets, analysis. Minimal amount of building lighting is provided that would be visible from the residential neighborhoods. All fixtures appear to be full cut off, and mounted low on the building or under canopies so as not to produce glare for vessels or neighboring residential properties.

(l) Signs – Signs will come under separate permit application according to Sign Ordinance in Division 22.

(o) Design and Visual Character:

1) *Long Views/Building Design:* Change in roof form provides some visual interest to meet the standard. Rooftop mechanicals are placed on a lower portion of the building to reduce visibility from long views and are screened. PV panels and roof drainage systems have low profiles. Massing variation provides some variation and smaller scale to the overall form.

2) *Massing:* Massing emphasizes administrative uses with a smaller-scale, one-story portion of the building at the ROW interface that indicates the active portions of the building and street-facing entrances. A second change in massing occurs at the loading dock.

3) *Façades – equal treatment:* All façades include equal treatment of materials and openings. The roof form is somewhat varied. Materials are placed according to function and massing and break up the scale of the building from some perspectives. For functional reasons, two of the façades have no massing or material variation with minimal openings and no articulation other than stoops at the entrances. To address the design requirements, the applicant proposes a color change related to the massing change to visually break up the façades. Staff support this approach in lieu of the ability to provide openings or massing variation.

4) *Façades – variation and articulation:* Project provides some visual interest with varied roof line and massing, change in material texture, windows, canopies, roof drains.

Two of the façades have no massing or material variation with minimal openings and no articulation other than stoops at the entrances, roof drains – a color change is proposed to address the standard. Staff suggest the proposed colors might be darker to be more recessive or else have greater contrast between the two to emphasize the visual break. A brighter, more dynamic color is another direction if visual interest is a priority.

5) Scale and Articulation: Project meets articulation requirement with canopy, entrances, and fenestration. The building also includes massing variation/stepbacks at the street-facing façade.

Planning Board Considerations

- Does the change in color sufficiently address the design standards regarding visual interest and equal treatment of facades for the two functional, water-facing elevations?
- Does the Board have further comments about the color selection or placement in relation to the standards – the intent is to prevent large expanses of blank wall while considering the functional constraints of buildings in an industrial zone.

Planning and Urban Development Department

Planning Division



Subject: WPDZ Design Review – 40 West Commercial (Cold Storage)
Written by: Caitlin Cameron, Urban Designer
Date of Review: Thursday, April 2 2020

The project at 40 West Commercial Street – Cold Storage Facility – was reviewed according to the adopted WPD Zone performance standards by Caitlin Cameron, Urban Designer.

Design Review Comments: *(questions and unmet standards in red)*

Sec. 14-320.3 Performance Standards

(k) Lighting – Applicant has provided a photometric plan, cut sheets, analysis. Minimal amount of building lighting is provided that would be visible from the residential neighborhoods. All fixtures appear to be full cut off, and mounted low on the building or under canopies so as not to produce glare for vessels or neighboring residential properties.

(l) Signs – Signs will come under separate permit application according to Sign Ordinance in Division 22.

(o) Design and Visual Character:

- 1) *Long Views/Building Design:* Change in roof form provides some visual interest to meet the standard. Rooftop mechanicals are placed on a lower portion of the building to reduce visibility from long views and are screened. PV panels and roof drainage systems have low profiles. Massing variation provides some variation and scale to the overall form.
- 2) *Massing:* Massing emphasizes uses with a smaller-scale, one-story portion of the building at the ROW interface that indicates the active portions of the building and street-facing entrances.
- 3) *Façades – equal treatment:* All façades include equal treatment of materials and openings. The roof form is somewhat varied. Materials are placed according to massing and break up the scale of the building from some perspectives. **Two of the façades have no massing or material variation with minimal openings and no articulation other than stoops at the entrances.**
- 4) *Façades – variation and articulation:* Project provides some visual interest with varied roof line and massing, change in material texture, windows, canopies, roof drains. **Two of the façades have no massing or material variation with minimal openings and no articulation other than stoops at the entrances, roof drains.**

5) *Scale and Articulation*: Project meets articulation requirement with canopy, entrances, and fenestration. The building also includes massing variation/stepbacks at the street-facing façade.



**MAINE
INTERNATIONAL
COLD STORAGE
FACILITY**

**LEVEL III SITE
PLAN**

40 West Commercial
Street
Portland, ME

41 Hutchins Drive
Portland, ME 04102
800-426-4262

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

0232277.00
**Maine International Cold
Storage Facility LLC**
March 13, 2020

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1. APPLICATION

A Level III Site Plan has been filed through the City of Portland Citizen Self Service and Eplan online system. The Level III Site Plan Checklist is attached.

1.1 APPLICATION FEES

The Application Fee will be paid by the Applicant online. It is our understanding that the application fee includes:

- Level III Site Plan Over 300,000 SF \$7,000
 - Site Location of Development Permit \$3,500
- TOTAL: \$10,500

1.2 ATTACHMENTS

- Level III Checklist

CITY OF PORTLAND
Planning & Urban Development Department

LEVEL II and LEVEL III SITE PLAN
GENERAL DOCUMENT AND DRAWINGS CHECKLIST

Please submit each document as a separate PDF file
Please confirm by electronically checking the boxes to the left

**** PLEASE FILL OUT AND UPLOAD SEPARATELY THE ZONING TABLE
AND WAIVER TABLE AS NOTED BELOW ****

GENERAL APPLICATION DOCUMENTS

Yes ☒	NA ☐	Project Description Cover Letter with detailed project description
Yes ☒	NA ☐	Completed Checklist – Level I: Site Alteration (this document)
Yes ☒	NA ☐	Right, Title and Interest Deeds, leases, or purchase and sales agreements
Yes ☒	NA ☐	Evidence of State or Federal Approvals Permits or letters of non-jurisdiction, if applicable
Yes ☒	NA ☐	Zoning Assessment Table listing required and proposed uses and dimensional standards Zoning Assessment Table
Yes ☒	NA ☐	Existing and/or Proposed Easements or Covenants, applicable. Evidence of existing easements and any proposed easements
Yes ☒	NA ☐	Waiver Requests Written request for waiver describing request and reason Waiver Table
Yes ☒	NA ☐	Financial Capability Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes ☒	NA ☐	Technical Capability Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

**LEVEL II AND LEVEL III SITE PLAN
STANDARDS AND SUBMISSION CHECKLIST**
Provide assessment of compliance with standards and include
supplemental documentation, as applicable
Please Submit each document as a separate PDF file

TRANSPORTATION

Yes ☒	NA ☐	Transportation Analysis- Traffic Impact (14-526 (a) 1) - Provisions for pedestrian, bicycle, vehicle, and loading circulation and incremental volume of traffic impacts - Traffic Impact Study (Technical Manual, Section 1) if applicable
Yes ☒	NA ☐	Access and Circulation (14-526 (a) 2 a) - Access and internal circulation, addressing ADA access - Access and egress impacts on traffic flows - Description and use of drive-up features, if applicable
Yes ☒	NA ☐	Loading and Servicing (14-526 (a) 2 b) - Loading and servicing needs, route and travel way geometrics for deliveries - Turning templates for delivery vehicles, if applicable
Yes ☒	NA ☐	Sidewalks (14-526 (a) 2 c) - Sidewalks and condition along street frontages and internal walkways - Engineered details for ADA ramps and public sidewalk details meeting sidewalk materials policy and ADA ramp construction details as applicable (Technical Manual, Section 1)
Yes ☐	NA ☒	Public Transit (14-526 (a) 3), if applicable - Existing available transit services - Proposed site plan design details, such as easement, pad base, and shelter
Yes ☒	NA ☐	Off-Street Parking: Vehicle & Motorcycle/Scooter) (14-526 (a) 4 a and c) - Expected parking demand, proposed parking supply, ADA parking, and applicable Zoning Requirements - Address Technical Manual standards (Section 1) for curb cut separation and parking lot layout and locate on site plan
Yes ☒	NA ☐	Bicycle Parking (14-526 (a) 4 b) - Address bicycle parking requirements and identify locations on-site - Construction details for bike racks (Technical Manual, Section 1)
Yes ☒	NA ☐	Snow Storage (14-526 (a) 4 d) Management plan for snow removal and locate snow storage areas on plan
Yes ☒	NA ☐	Traffic Demand Management (TDM) (14-526 (a) 5), if applicable Develop TDM with Trip Reduction Targets and Strategies

ENVIRONMENTAL AND LANDSCAPE FEATURES		
Yes ☒	NA ☐	Preservation of Significant Natural Features (14-526 (b) 1), if applicable • Trees, plants, habitats listed on State or Federal list of endangered or threatened • High and moderate value waterfowl and wading habitat • Aquifers on Casco Bay Islands • Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) • Proposed preservation areas and protection measures • Documentation from environmental consultants, determinations from applicable state agencies
Yes ☒	NA ☐	Landscaping and Landscape Preservation (14-526 (b) 2 a) • Preservation of trees and preservation within required zoning setbacks (Technical Manual, Section 4) • Protection measures of existing vegetation during construction • Protection measures within Shoreland Zone, if applicable
Yes ☒	NA ☐	Site Landscaping (14-526 (b) 2 b) • Screening and buffering of service areas and between non-residential and residential uses • Planting plans with plant schedule and sizes (Technical Manual, Section 4)
Yes ☒	NA ☐	Parking Lot Landscaping (14-526 (b) 2 b ii), if applicable • Landscaped islands within parking areas (Technical Manual, Section 4)
Yes ☒	NA ☐	Street Trees (14-526 (b) 2 b iii) • Existing Heritage or Feature Trees on site and measures to preserve • Identify street trees on the plan meeting the site plan and Technical Manual standards (Section 4) or identify alternative measures, if applicable
ENVIRONMENTAL AND STORMWATER		
Yes ☒	NA ☐	Water Quality, Stormwater Management and Erosion Control (14-526 (b)3 a) • Stormwater report in compliance with Section 5 of Technical Manual and DEP Chapter 500 stormwater for basic, general and flooding standards, as applicable • Erosion control plan and measures • Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater, as applicable • Subsurface sanitary sewage disposal and groundwater protection

PUBLIC INFRASTRUCTURE AND SAFETY		
Yes ☒	NA ☐	Consistency with City Master Plans (14-526 (c) 1) - Identify consistency with master plans - Proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes ☒	NA ☐	Public Safety and Fire Prevention (14-526 (c)) - Address Crime Prevention through Environmental Design (CPTED) (Technical Manual, Section 3) - Emergency vehicle access - Address consistency with public safety standards (Technical Manual, Section 3) - Submit a code summary referring NFPA 1 and all Fire Department standards (Technical Manual, Section 3) – Fire Checklist
Yes ☒	NA ☐	Availability and Adequacy of Public Utilities (14-526 (c) 3) (Technical Manual, Sections 2 & 9) - Electrical services, including providing underground services - Identify existing and proposed connections for public utilities and required public utility upgrades - Sewer line connections are required, if there is a main within 200 feet - Proposed solid waste management facilities on-site and management for the site - Written evidence of the ability to serve from utility companies, as applicable
SITE DESIGN		
Yes ☒	NA ☐	Massing, Ventilations and Wind Impact (14-526 (d) 1) - Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable - Bulk, location or height impacts on adjoining structures - Identify and locate HVAC equipment and venting away from public spaces and residential properties - Identify screening and manufacturing specifications for noise, if applicable
Yes ☒	NA ☐	Shadows (14-526 (d) 2), if applicable Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes ☒	NA ☐	Snow and Ice Loading (14-526 (d) 3) Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes ☒	NA ☐	View Corridors (14-526 (d) 4), if applicable Protection of designated view corridors (Portland Design Manual, Appen. 1)

Yes ☒	NA ☐	Historic Resources (14-526 (d) 5), if applicable • Identify developments within Historic Districts or affecting Designated Landmarks • Certificate of Appropriateness or other evidence • Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required • Address preservation and documentation of Archaeological Resources
Yes ☒	NA ☐	Exterior Lighting (14-526 (d) 6) • Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12) • Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)
Yes ☒	NA ☐	Noise and Vibration (14-526 (d) 7) • Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements
Yes ☒	NA ☐	Signage and Wayfinding (14-526 (d) 8), if applicable • Signage plan showing the location, dimensions, height and setback of all existing and proposed signs. Signs in Historic Districts are reviewed by Historic Preservation staff • Proposed commercial and directional signage on site
Yes ☒	NA ☐	Zone Related Design Standards (14-526 (d) 5) • Address Historic Preservation Design Review, if applicable • Address any applicable design review standards by zone • Address submission requirements from Design Manual, page 1, addressing neighborhood context • Description of exterior materials, color, finish, and samples
Construction Management Plan		
Yes ☒	NA ☐	Construction Management Plan • Construction Management Document and Plan

**LEVEL II AND LEVEL III SITE PLAN
DRAWINGS CHECKLIST**

Please upload the following DRAWINGS with the listed details into e-Plan as separate pdfs

RECENT BOUNDARY SURVEY (stamped by Maine Licensed Surveyor)

- ☒ Must be in compliance with Technical Manual, Section 13

SITE PLAN(s) (stamped by Maine Licensed Engineer) including:

Existing Conditions

- ☒ Approximate location of structures on abutting property
- ☒ Topography
- ☒ Locate water courses (Fore River)
- ☒ Delineate wetlands (Fore River)
- ☐ Zone lines

Proposed Site Plan

- ☒ Ground floor area, and grade elevations for all buildings

Access, Circulation, and Parking

- ☒ Streets and intersections adjacent to site, any proposed geometric modifications
- ☒ Location, dimensions and materials of all existing and proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- ☒ Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- ☒ Location and dimensions of proposed loading areas
- ☐ Existing and proposed transit infrastructure with dimensions/ engineering specifications
- ☒ Location of vehicle and bicycle parking with dimensions and engineering specifications

Site Considerations

- ☒ Identify snow storage areas
- ☒ Location of fire hydrants
- ☒ Location of solid waste management facilities

UTILITY PLAN including:

- ☒ Existing utilities on site and within public streets
- ☒ Location, sizing and directional flows of all existing and proposed utilities
- ☒ Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- ☒ Electric utility infrastructure

GRADING AND DRAINAGE PLAN including:

- ☒ Existing grades and drainage
- ☒ Proposed grades
- ☒ Proposed stormwater management meeting Technical Manual (Section 5), standards
- ☐ Location and proposed alteration of a water course
- ☒ Preservation or alteration of wetlands

EROSION CONTROL

- ☒ Must be in compliance with Technical Manual, Section 5

LANDSCAPE PLAN including:

- ☒ Existing vegetation to be preserved and preservation measures
- ☒ Proposed landscaping and buffers
- ☒ Planting schedule

RECORDING PLAT, if applicable
☐ If Subdivision, must be in compliance with requirements of Section 14-496 (b)
ARCHITECTURAL PLANS AND RENDERINGS including:
☒ Exterior building elevations, color renderings, illustrations of all sides
☒ Location and dimensions of all existing and proposed HVAC and mechanical equipment, all proposed screening
☒ Provide context drawings, if applicable (Design Manual, page 1)
☒ Floor plans



March 13, 2020

James Rather
City of Portland Development Review Services Manager
389 Congress Street
Portland, ME 04101

Re: Maine International Cold Storage Facility | 40 West Commercial Street
Level III Site Plan Application
Site Location of Development Application

Dear James:

On behalf of Maine International Cold Storage Facility LLC, Woodard & Curran is submitting a Level III Site Plan for the proposed Cold Storage Facility located at 40 West Commercial Street in Portland, Maine. The proposed development resides within the Waterfront Port Development Zone on a currently vacant area of 17.9-acre property. The proposed work includes construction of a single story, 108,024 square-foot building, truck loading area, truck and employee parking areas, fire access drive, and associated site and utility improvements. The interior program will include common business administration space, mechanical rooms, maintenance space, cold storage warehousing, and shipping and receiving docks. A 24-foot wide fire access road will circulate around the building to provide emergency access to all four sides of the building.

The Application documents were prepared in accordance with City of Portland's Chapter 14, Land Use Code of Ordinances and meet the applicable sections of the City of Portland Design and Technical Manuals. The Site Location of Development Application has been prepared in accordance with Maine Department of Environmental Protection Chapter 500 regulations, and it is our understanding that the City will review it under its Delegated Review Authority. The Application reports, attachments and design drawings have been uploaded into the project Eplan folder. If there are any questions on the uploaded materials, please don't hesitate to let me know.

Thank you for coordinating the review of this project. If you have any questions regarding this application, please feel free to contact me at (207) 558-3662 or by email at dstairs@woodardcurran.com.

Sincerely,

WOODARD & CURRAN INC.

Darrin Stairs, PE
Project Manager

cc: Eric Carlson, Jedd Steinglass - Woodard & Curran, Inc.
Matthew Dieterich - Treadwell Franklin Infrastructure Capital

2. PROJECT DESCRIPTION

Woodard & Curran is submitting this Level III Site Plan Application for the Cold Storage Facility on behalf of the Maine International Cold Storage Facility LLC. A letter authorizing Woodard & Curran to act at the agent on behalf of the Applicant is attached to this Section.

2.1 INTRODUCTION

The proposed Cold Storage Facility project will be located on a parcel of industrial land located along the Fore River at 40 West Commercial Street in Portland, Maine as shown on **Figure 1** (the Site). The Site was operated by Portland Gas Light Company (Portland Gas) between 1852 and 1965. During this time, coal was delivered to the Site by ship and rail and then converted into coal gas, which was used for lighting, heating, and cooking purposes. In 1965, Portland Gas ceased operations at the Site, and the manufactured gas plant (MGP) was decommissioned. In 1966, Portland Gas merged with Lewiston Gas Light Company to form Northern Utilities, Inc. (Northern Utilities). Northern Utilities and a tenant (NGL Energy Partners, LP) operated a natural gas/propane distribution facility at the Site until 2016. The Site is currently owned by the State of Maine (acquired through eminent domain on April 30, 2014) and is currently operated by the Maine Port Authority as part of the adjacent International Marine Terminal (IMT), an intermodal container shipping facility that supports cargo coming and going from the Site via rail, ship, and truck.

In 2014, the State of Maine acquired 23 acres of vacant land (which includes the Site) adjacent to the IMT to develop intermodal rail access and construct a larger trucking yard for freight transfer operations. In addition, logistics and freight capabilities have been expanded through improvements at the container terminal and ocean shipping operations facility at the IMT.

The parcel where the project will be located is a 17.9 +/- acre site. The attached Location Map and Tax Maps show the project location. The property is Tax Map 59, Block A, Lots 1,2,5-11. The project is located within the City of Portland Waterfront Port Development Zone (WPDZ). A portion of the site is also within the Shoreland Protection Zone.

2.2 PROJECT PURPOSE AND NEED

The proposed cold storage facility, when operated in cooperation with existing facilities at the neighboring IMT, will satisfy the need for a northern New England refrigerated logistics facility that can support the domestic and international transport and distribution of refrigerated products.

2.3 EXISTING CONDITIONS

The Existing Conditions Plan, included in the drawings submitted with this application, depicts the existing conditions of the project area, based on a ground-level survey and site observations completed by Owen-Haskell on October 23, 2019. A portion of the development is within the 100-year flood plain; a FEMA flood zone map has been attached to this Section for reference. The Base Flood Elevation for the site is 10, and it is in Special Flood Hazard Area AE.

The area of the 17.9-acre property where the Cold Storage Facility is proposed is currently vacant. There are remnant concrete slabs and pavements, site lights, transformer pads, railroad tracks, and gravels that will be removed. Other portions of the property, outside of the proposed Cold Storage Facility, are being currently being used for various IMT operations. There is also a gas facility operated by Unitil located on the parcel. Topography slopes generally from West Commercial Street towards the Fore River, from approximate elevation 15' down to 10' at the approximate top of bank, before breaking in slope down to the river. The Highest Annual Tide Line is at Elevation 7.2 (NGVD 1929).

2.4 PROPOSED DEVELOPMENT

The intent of the project is to construct a 108,024 square foot cold storage facility within the Waterfront Port Development Zone in Portland. The building will be a single-story structure with varying roof heights. The interior program will include common business administration space, mechanical rooms, maintenance space, the main cold

storage spaces and shipping and receiving docks. A 24-foot wide fire access road will circulate around the building to the west and south along the Fore River, with “knox box” gated accesses located near the passenger car parking areas, and the truck parking areas. Emergency vehicles will have access to all four sides of the building. The access road along the Fore River extends to the Unitil Gas facility. The project will include associated utility and site improvements.

2.4.1 Civil Engineering Approach

The Cold Storage Facility has been designed to separate passenger car traffic from truck traffic. Trucks entering from West Commercial Street will turn east to the loading dock side of the building, which is closer to the rest of the IMT facility. Employee passenger cars will enter from West Commercial Street and turn to the west, to a passenger car parking area located on the west side of the building. Pedestrian walkways will connect the passenger car parking area with the administration portions of the building. A striped crosswalk will provide pedestrian access to West Commercial Street. Pedestrians can then cross at the signalized intersection of West Commercial Street and Beach Street to a sidewalk on the north side of West Commercial Street.

Site work will also include utility improvements to support the cold storage facility. Utility requirements are described in further detail in Section 13 of this report. A set of project design plans showing the proposed Cold Storage Facility is attached to this application. The set includes site, utility, grading and drainage plans, and details to support the site design.

2.4.2 Architectural Approach

The proposed facility is in line with the intended building uses within the Waterfront Port Development Zone. The building is a “working waterfront” facility positioned on a site that is an active part of the Portland “working waterfront.” In response to this, CWS Architects has been careful to incorporate a design approach that aligns with the City of Portland’s Land Use Ordinance while recognizing the limitations of the building’s inherent cold storage facility features. Efforts have been made to break up the form and bring it down to a human scale as well as to introduce interest and respect the context of the surrounding properties.

2.4.2.1 The Massing

In starting the design process, it was apparent that there would be a distinct need break up the bulk of the main cooler portion of the building. A logical solution was to take the spaces that don’t require tall open ceiling conditions and place them along the Commercial Street side of the building creating a natural step in the building’s overall form. This lower portion of the building houses administration and building utility entrance spaces. This lower form has been carried around the eastern corner and has been pulled away from the western corner helping accent these locations and to break up the form even further. The east elevation incorporates the main loading dock bays and has a lower roof than the main cooler which creates another step in the primary form. The introduction of metal panel joints and accented building elements creates variation and interest on the south and west elevations, breaking up the larger scale of these exposed facades.

2.4.2.2 The Building as a Structure

In areas of the building where the use of the building requires mechanical equipment to be set upon exposed roof areas, two screening alternatives have been incorporated. Along the primary Commercial Street façade, a tall parapet has been incorporated to hide roof top units. Two chillers will need to be placed upon the western roof of the mechanical room. In order to create interest and to assist in hiding the equipment, an open mesh screen wall has been proposed. This will allow openness for required air flow while hiding the equipment. A limited amount of piping will need to extend from this portion of the building to the main roof top. These pipes will need to remain exposed and will celebrate the industrial use. The upper main roof is a pitched roof structure incorporating scuppers and downspouts controlling watershed on both the east and west elevations. This further exemplifies the cold storage use and the inability to utilize

internal roof drains within cooler limits. These downspouts become accent elements assisting in breaking up the wall planes.

2.4.2.3 Details, Color, Texture, Consistency

As employees and visitors arrive on site, they will be directed to the main parking lot area on the Western side of the building. From this lot, the sidewalk circulation will bring them to the main entrance mid-way down the Commercial Street main façade. Because of this, design considerations have been given to introducing human scale elements and common commercial building design assemblies along this façade. The primary façade material will be horizontally oriented insulated metal paneling. This paneling will be 8'-0" long and 30 inches high placed in a stacked bond. A dusty gray/blue accent color has been proposed. Much of the main façade has been opened up with large areas of aluminum storefront window assemblies allowing for natural light and creating transparency along the façade and the wrapped corner conditions. A projecting louver system above the window units will assist in light control and help humanize the scale of the wall. A red brick wainscot with a precast concrete cap has been detailed to draw upon a common Old Port context element.

The primary wall assemblies throughout the build are insulated metal wall paneling oriented vertically. Two colors are proposed. The main cooler assembly will require white or a slightly off-white color in order to avoid excessive heat gain within the space. A gray accent color has been proposed for the mechanical room along the Commercial Street side of the building. The orientation of these panels allows for the incorporation of a horizontal butt joint that creates an accent line around the building breaking up the height of the wall plane.

2.4.2.4 Summary

In summary, we believe that the overall design approach to the project is in alignment with the Waterfront Port Development Zone. CWS has incorporated design elements directly responding to the Design and Visual Character outlined for the ordinance. The project itself will increase commerce and bring added vitality to the Western end helping to continue to on-going redevelopment of the area.

2.4.3 Landscaping Approach

The landscape concept for the Cold Storage Building focuses on two distinct areas of the site: the main building façade and perimeter landscaping, as described in the following sections. Trees, shrubs, and ground covers have been selected based on exposure, type of use, color/flowering characteristics, and growing conditions. Shrubs and groundcovers will be a mixture of evergreen and deciduous plants, providing year-round interest and appropriate to the shady microclimate of the site. We anticipate working closely with the City Arborist on the final selection of these plant species.

2.4.3.1 Main Building Façade

It is recognized that the mass and height of the Cold Storage Building will not be effectively screened or buffered by any amount of landscaping treatment, it is an industrial building in an industrial site. The project site is most visible at the entrance to the property at the intersection of Commercial and Beach Streets in Portland. The building façade on this end of the building is designed to step down from the actual refrigerated building and accommodate the main entrance, offices, break rooms, and mechanical space. It becomes the public face of the project and justifies a significant level of landscape treatment. A fairly narrow planting strip runs the length of this facade, varying in width from 6 ft on the northeast side to over 12 ft in width on the northwest side. Landscape treatment here includes tree planting (River Birch) against the solid wall on the northeast, with evergreen and deciduous planting below and in front of office windows on both sides of the main pedestrian entrance to the building. All plantings in this area will be connected by an understory of New York Fern, providing a low maintenance, naturalized, unifying element along this face of the building. Moving to the west, the landscape area becomes wider (12 ft), and larger shade trees can be

utilized to soften the building massing and break up the façade. We are proposing that this area be seeded as a mowed lawn, projecting a manicured look against the building. Trees in this area are proposed to be Armstrong Maple. We are also proposing to install a massing of evergreen and deciduous shrubbery at the northwest corner of the building to screen the generator and transformer from view.

2.4.3.2 Perimeter Landscaping

The other defined landscapes on the site include shade tree planting (Honeylocust) along the west elevation adjacent to the employee parking area, and groupings of evergreen and deciduous trees (Spruce and Maple) at the northwest and southeast corners of the site to soften the building massing from West Commercial Street and the waterside. Ground treatment in these perimeter areas is proposed to be seeded with a meadow mix, providing a stable vegetated surface that would likely be mowed 2-3 times a year.

2.5 ATTACHMENTS

- Agent Letter
- Location Map
- Tax Map
- FEMA Map
- Civil, Landscape, & Architecture Design Plans (uploaded to Drawings folder in Eplan)
- Architectural Renderings (uploaded to Drawings folder in Eplan)

February 28, 2020

City of Portland
Planning Board
389 Congress St, 4th Floor
Portland, ME 04101

Re: Maine International Cold Storage Facility – Authorization for Permitting

To Whom it May Concern:

On behalf of Maine International Cold Storage Facility, LLC, Woodard & Curran is authorized to apply for Planning Board approval for the proposed Maine International Cold Storage Facility to be located at approximately 40 West Commercial Street in Portland. Furthermore, Woodard & Curran is authorized to act on behalf of Maine International Cold Storage Facility, LLC throughout the permitting process.

Should you have any further questions, please do not hesitate to contact me at Tom.Oshaughnessy@amberinfrastructure.com

Regards,



Tom O'Shaughnessy, President Maine International Cold Storage Facility, LLC



Service Layer Credits: Esri, HERE, Garmin
(c) OpenStreetMap contributors, and the GIS user community

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Feet

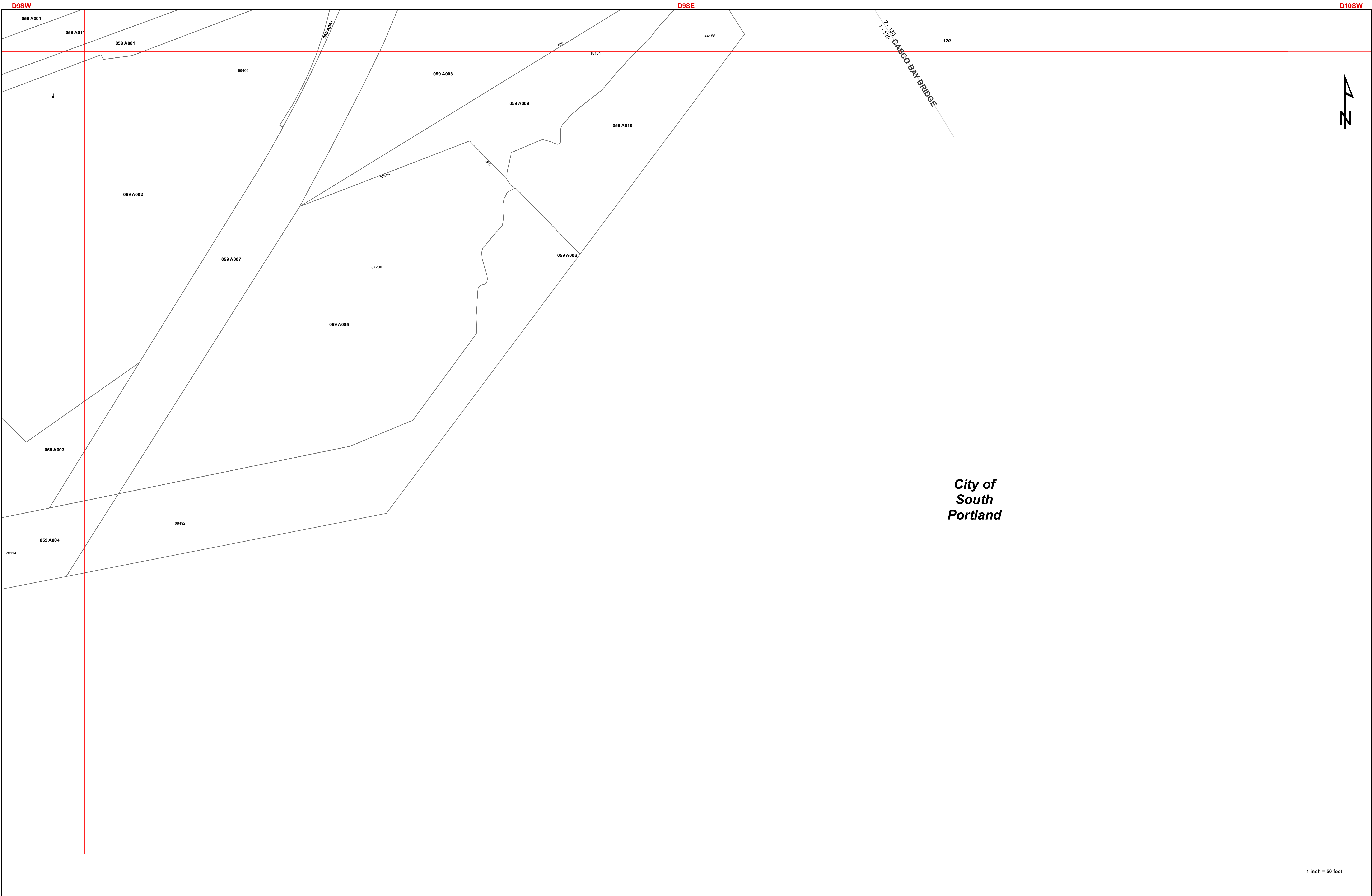
IMT COLD STORAGE FACILITY

COMMERCIAL STREET
PORTLAND, ME

FIGURE 1 - SITE LOCATION MAP



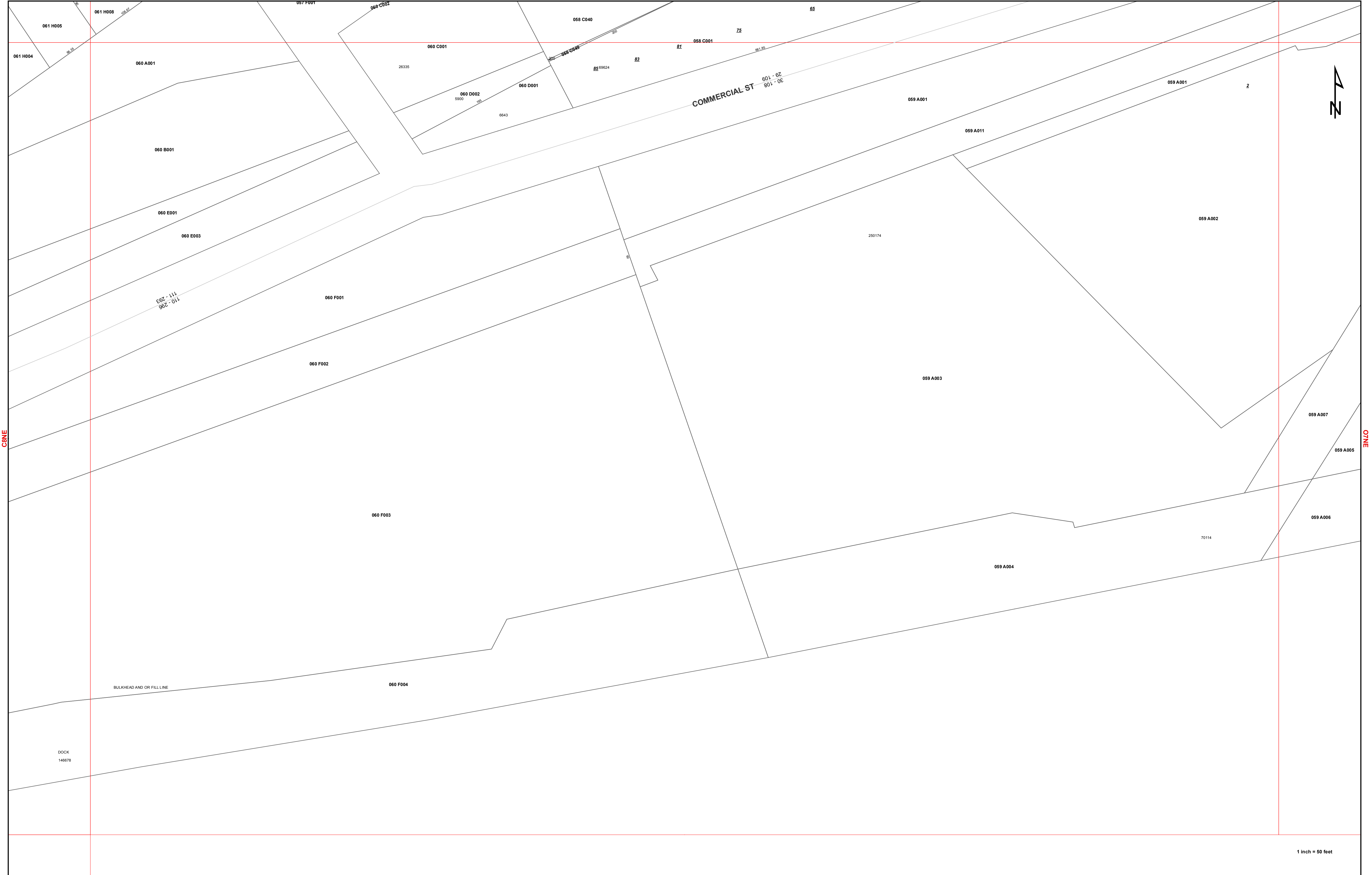
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Map Created: September 2019



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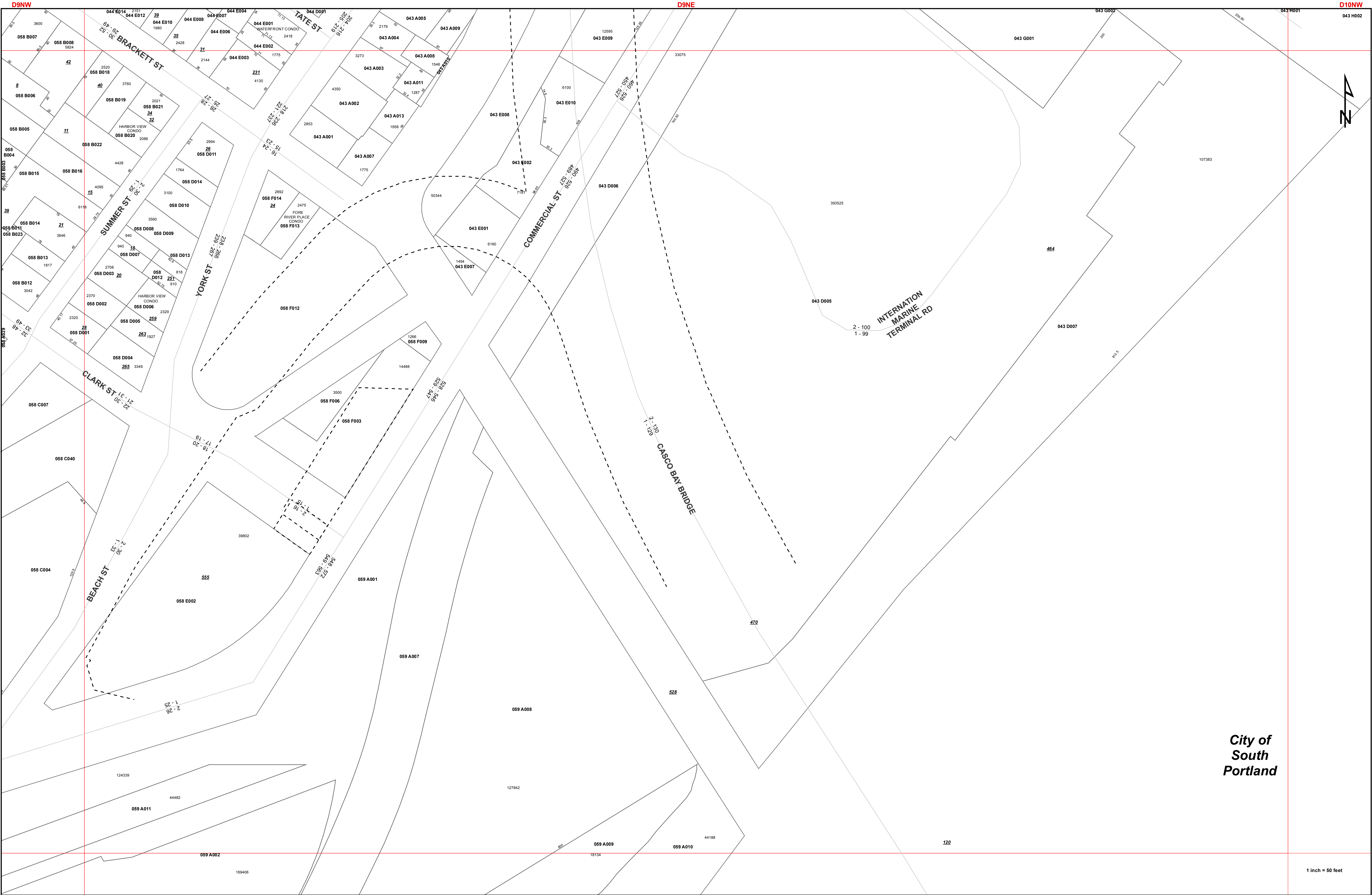
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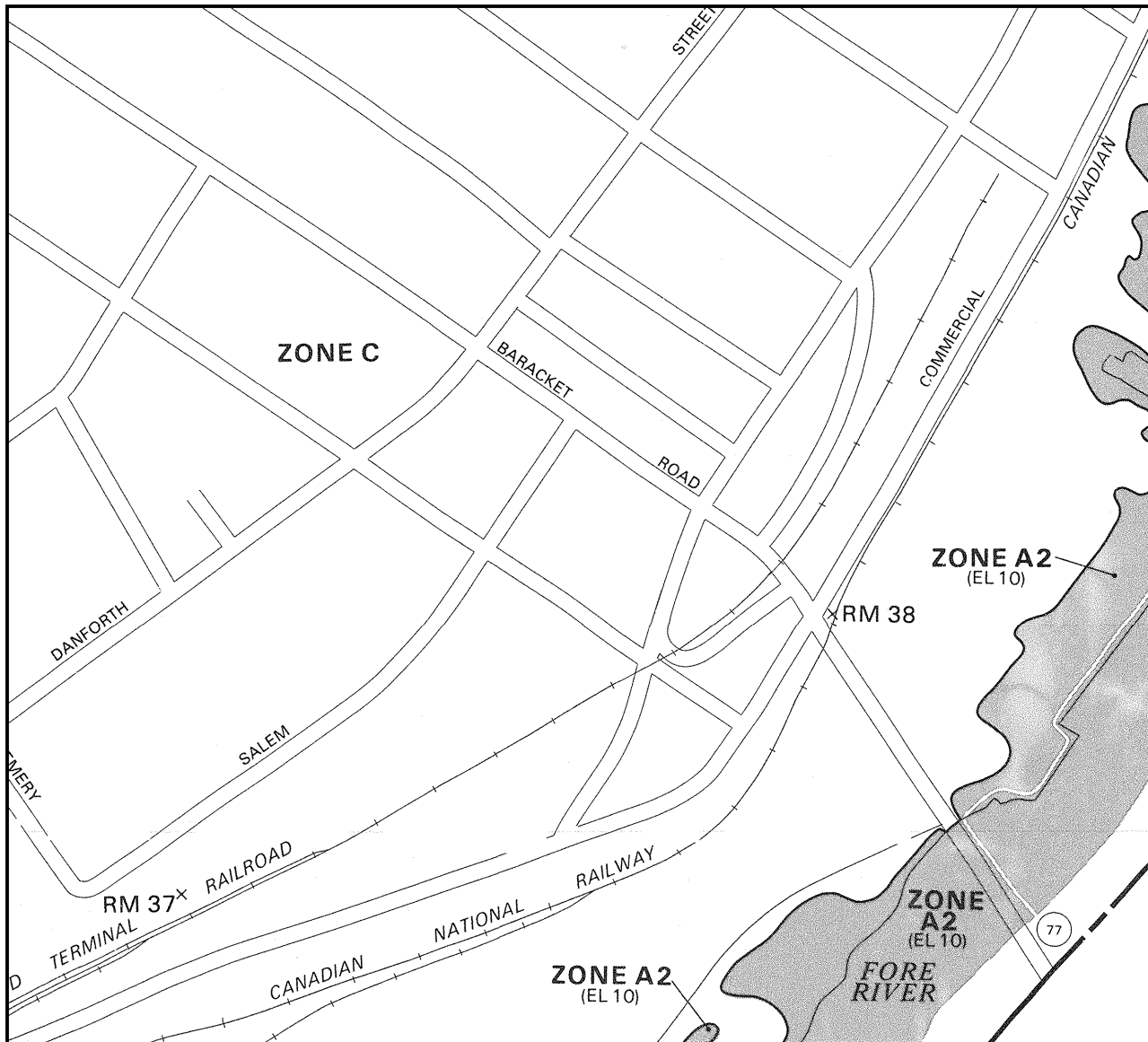
C8SE

April 1 2012 fy 2013

Tax Map Index; <http://www.portlandassessors.com/taxmaps.htm>

Index Number - C9NW





APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM FLOOD INSURANCE RATE MAP

CITY OF
PORTLAND, MAINE
CUMBERLAND COUNTY

PANEL 13 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

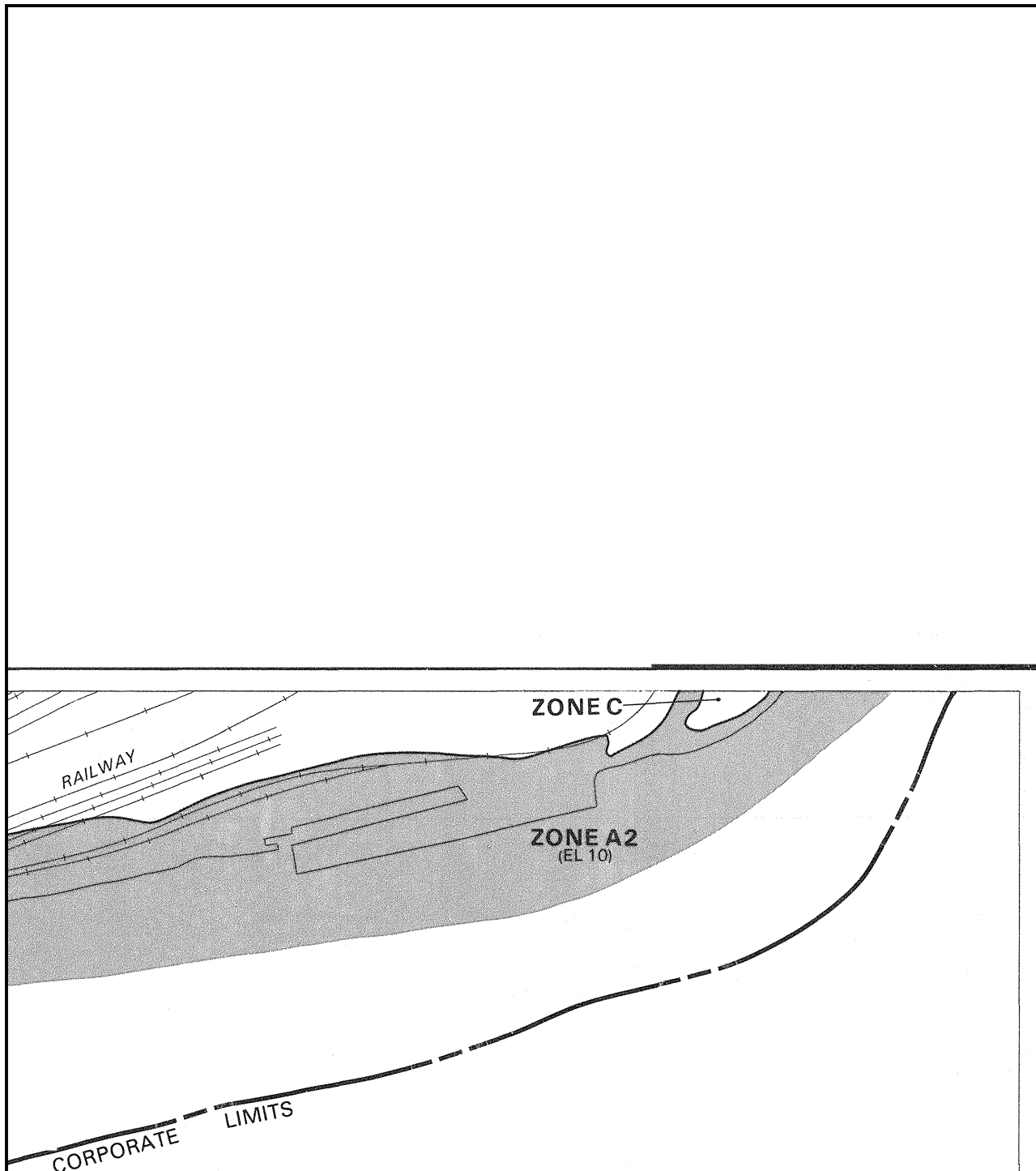
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230051 0013 B

EFFECTIVE DATE:
JULY 17, 1986

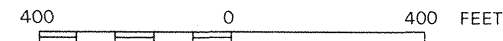


Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
PORTLAND, MAINE
CUMBERLAND COUNTY

PANEL 16 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230051 0016 B

EFFECTIVE DATE:
JULY 17, 1986



Federal Emergency Management Agency

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Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
 5 PALMER STREET BATH, MAINE 04530
 TEL (207) 443-5447

Main Port Authority Cold Storage Facility
 Portland, Maine

March 2, 2020
 Revised May 11, 2020

PROPOSED SITE LIGHTING

Basis of Site Lighting Design

The *Illuminating Engineering Society of North America (IESNA)* published recommended lighting standards for marine port facilities in RP-40-19 Recommended Practice: Lighting Port Terminals. RP-40-19 recommends the following horizontal illuminance levels:

Average Illuminance at Grade:	3.5 footcandles
Minimum Illuminance at Grade:	1.0 footcandle
Maximum-to-Minimum Uniformity Ratio:	6.0-to-1 or less

Section 12 of the City of Portland Technical Manual stipulates the following illuminance design criteria:

Average Illuminance at Grade:	1.25 footcandles
Minimum Illuminance at Grade:	0.2 footcandle
Maximum Illuminance at Grade:	5.0 footcandles
Maximum-to-Minimum Uniformity Ratio:	20.0-to-1 or less

Additionally, The Technical Manual stipulates that the maximum lighting pole height for large industrial facilities (> 50,000 SF) be not greater than 30-feet.

The proposed site lighting design has been prepared to provide user safety while respecting reasonable design criteria. The requirement to keep the marine port loading/unloading and dock vehicle areas clear of lighting poles makes the lighting layout a challenge given the width of the paved area. Lighting for this area is proposed to consist of lighting poles along the perimeter of the paved area, as well as building mounted lighting. The following design criteria serve as the basis for the site lighting design:

- Illuminance Levels:
 - Parking Lot and Access Drives

Average Illuminance at Grade:	1.25 footcandles
Minimum Illuminance at Grade:	0.2 footcandle
Maximum Illuminance at Grade:	5.0 footcandles
Maximum-to-Minimum Uniformity Ratio:	20.0-to-1 or less
 - Marine Cold Storage Loading/Unloading Area

Average Illuminance at Grade:	2.5 footcandles
Minimum Illuminance at Grade:	0.75 footcandle
Maximum Illuminance at Grade:	5.0 footcandles
Maximum-to-Minimum Uniformity Ratio:	6.0-to-1 or less
- Mounting Heights
 - Parking Lot and Access Drives
 - Lighting Poles: 20-feet (maximum)
 - Building Mounted Lights: 20-feet (maximum)
 - Marine Cold Storage Loading/Unloading Area
 - Lighting Poles: 35-feet (maximum) (rev. 05/11/20)
 - Building Mounted Lights: 30-feet (maximum)

Requirements for site lighting are addressed by the City of Portland in two documents: The City of Portland, Maine - Code of Ordinances, and the City of Portland - Technical Manual. Listed below are the issues pertaining to the proposed site lighting as relates to the two city documents.

The City of Portland - Maine Code of Ordinances

Chapter 14 – Land Use

Article V Site Plan

14-526.6 Exterior Lighting

a. Site Lighting

- (i) *All exterior site lighting, including lighting of building entrances, shall be full cut-off with no light emitted above the horizontal plane or spilled onto adjacent properties and streets. Illumination levels shall be adequate but not excessive for safety, comfort and convenience of occupants and users of the site and shall conform to applicable standards of Section 12 of the Technical Manual.*

RESPONSE: The *Illuminating Engineering Society of North America (IESNA)* classifies exterior luminaires in the publication *IESNA TM-15-11* according to their potential for producing uplight. The rating system is a numeric index that ranges from zero (no uplight) to five (greater than 1000 lumens uplight). All of the proposed site lighting luminaires are classified as having an uplight rating of (U0) Zero Uplight Component.

14-526.6 Exterior Lighting

a. Site Lighting

- (ii) *For major or minor site plans within or abutting a residential use or zone where light from the proposed development may adversely impact adjacent residential properties, exterior lighting shall employ house-side shielding.*

RESPONSE: Not applicable (project does not abut a residential zone)

The City of Portland Technical Manual

Section 12 Site Lighting Standards

12.3 General Standards

Outdoor lighting standards listed below apply to all new developments. 12.3.

1. ***Uniformity:*** *As measured in foot candles at grade, maximum-to-minimum illumination levels shall not exceed a ratio of twenty (20) to one (1.).*

RESPONSE: The maximum-to-minimum illumination ratio for the proposed site lighting is:

- Access Drives 9.0-to-1 (rev. 05/11/20)
- Parking Lot 2.8-to-1
- Marine Loading/Unloading Area 4.7-to-1 (rev. 05/11/20)
- Loading Dock 4.6-to-1 (rev. 05/11/20)

2. ***Illumination Levels:*** *Minimum, Maximum, and Average illumination levels for areas intended to be lighted, as measured at grade, shall be:*

<i>Minimum</i>	<i>0.2 footcandles (fc)</i>
<i>Maximum</i>	<i>5.0 footcandles (fc)</i>
<i>Average</i>	<i>1.25 footcandles (fc)</i>

RESPONSE: The illumination levels for the proposed site lighting are as follows:

- Front Access Drive:
 - Average Illuminance at Grade: 1.3 footcandles (rev. 05/11/20)
 - Minimum Illuminance at Grade: 0.6 footcandles

- Maximum Illuminance at Grade: 3.1 footcandles (rev. 05/11/20)
- Rear Access Drive:
 - Average Illuminance at Grade: 1.3 footcandles (rev. 05/11/20)
 - Minimum Illuminance at Grade: 0.5 footcandles (rev. 05/11/20)
 - Maximum Illuminance at Grade: 4.5 footcandles (rev. 05/11/20)
- West Parking Lot:
 - Average Illuminance at Grade: 1.2 footcandles
 - Minimum Illuminance at Grade: 0.6 footcandle
 - Maximum Illuminance at Grade: 1.7 footcandles
- Overall Marine Port Loading/Unloading Area:
 - Average Illuminance at Grade: 2.4 footcandles (rev. 05/11/20)
 - Minimum Illuminance at Grade: 0.9 footcandle (rev. 05/11/20)
 - Maximum Illuminance at Grade: 4.2 footcandles (rev. 05/11/20)
- Loading/Unloading Docks Area:
 - Average Illuminance at Grade: 3.0 footcandles (rev. 05/11/20)
 - Minimum Illuminance at Grade: 1.1 footcandle (rev. 05/11/20)
 - Maximum Illuminance at Grade: 5.0 footcandles (rev. 05/11/20)

The proposed minimum and maximum illuminance levels conform to the 12.3.2 standard. The average illuminance at the marine port loading/unloading area exceeds the 1.25 footcandle criteria as stipulated in the City Technical Manual. The average illuminance in this area is proposed as being necessary to promote the safety of loading/unloading activities.

3. Lumens: No fixture shall exceed 20,000 lumens (+/- 3%)

Types of Lighting	Maximum Lumens Allowed
Building Entrance	3,500 lumens

RESPONSE: The lumen ratings of the proposed site lighting luminaires at building entrances are all less than 3,500 lumens. The lumen rating of the proposed site lighting luminaires along the access drives, and at the parking lot are less than 20,000 lumens.

- Fixture Type S1A 2,846 lumens Fixture Type S4A 5,492 lumens
- Fixture Type S2A 1,424 lumens Fixture Type S4C 5,492 lumens
- Fixture Type S2B 9,300 lumens

The lumen output of luminaire Type S2B will be reduced to 6,268 lumens by means of dimming controls. The lumen output of the parking lot pole lights Type S4C will be reduced to 3,844 lumens by means of dimming controls. The lumen output of luminaire Type S4A will be reduced to 2,746 lumens at the Front Drive, and 4,119 lumens at the rear Drive, both by means of dimming controls. (rev. 05/11/20)

The lumen rating of the pole lights (Types S4D and S4E) that illuminate the marine port loading/unloading area exceed 20,000 lumens. Although this exceeds the 12.3.3 standard it is suggested that this is appropriate considering the potential for user safety at these areas.

- Fixture Type S4D 30,400 lumens Fixture Type S4E 25,913 lumens
(rev. 05/11/20) (rev. 05/11/20)

4. Light Trespass: The maximum illumination level at a property line shall not exceed 0.1-foot candle, as measured at grade, except where abutting industrial, or other non-sensitive uses. When a commercial or industrial use abuts a public right-of-way, or another commercial or industrial use, lighting must be designed so that the illumination at the property boundary line does not exceed 1.0 foot-candles.

RESPONSE: No illuminance level across the property line exceeds 0.1 footcandle.

5. *Luminaire Types: All fixtures must be LED and shall not exceed 3000K Correlated Color Temperature (CCT). Screw in light fixtures must have LED lamp specified to be maximum of 3000K CCT.*

RESPONSE: All proposed light fixtures utilize LED lamps with 3000K CCT.

6. *Full Cut-off Fixtures and Shielding Required: All outdoor lighting fixtures, including pole mounted and wall mounted luminaires, shall be constructed Full “cut-off” or with full shielding, type where lenses, refractors or lamp sources do not extend below the surface of the fixture housing and no direct light shall be directed at or above the horizontal plane.*

Where the light source from an outdoor light fixture is visible beyond the property line, shielding shall be required to reduce glare so that the light source is not visible from within any residential dwelling unit.

Light fixtures mounted under a canopy shall be recessed to that the lens cover is recessed into, or flush with, the underside (ceiling) of the canopy.

RESPONSE: All proposed site lighting luminaires are classified as “full cut-off”. The construction of the proposed canopies does not allow for recessed light fixtures. The proposed canopy-mounted light fixtures (Type S1A) are surface mounted on the underside of entrance canopies, and they include flush lenses that do not project below the fixture housing.

8. *Fixture Height: Fixtures shall be mounted at the lowest height necessary to meet city standards and the height is measured from grade to the bottom of the light fixture.*

Type of Lighting	Maximum Fixture Height
Residential (Pedestrian) Uses	20 feet
Commercial/ Office Uses	20 feet
Large Industrial Uses (50,000 sf or more- gross floor area)	30 feet
Building Mounted/ Entrances	below the roof eave and not to exceed 20 feet, whichever is lower
Bollard Fixtures	42 inches (3.5 feet)

RESPONSE: The maximum height of proposed site lighting fixtures at access drives, the parking lot, and at entrance/exit doors is less than 20 feet. The maximum height of proposed site lights at the marine port loading/unloading area is 34 feet (rev. 05/11/20). Given the width of the loading/unloading apron area, and the requirement for increased illumination levels to promote safety, it is necessary to set the pole height in this area to 34 feet. This matches the height of the existing site lighting poles that were installed in this area under the most recently IMT project (rev. 05/11/20).

9. *Lighting Curfew: For surface and structured parking, lighting in vehicle parking areas containing twenty (20) or more parking spaces shall be reduced to 50% of permitted levels from one hour after business closing to one hour before business opening. If lighting levels are already below 50% of permitted levels, no curfew adjustment is required. Motion sensor activated lighting shall be permitted during closing hours to activate additional lighting above the 50% permitted, for the purposes of public safety.*

RESPONSE: The facility operation extends 24 hours per day. Accordingly, it is proposed that the site lighting be operational for all hours from dusk until dawn.

10. *Continued Maintenance: Lighting installations must be maintained in good repair to meet the provisions of this ordinance on an on-going basis.*

RESPONSE: All proposed lighting will be maintained in full working order.

11. General Exceptions: proposed uses that demonstrate a need to exceed the specific site lighting limits shown below for safe and reasonable exercise of the proposed use must provide a professionally produced lighting plan which adheres to the current Illuminating Engineering Society of North America (IESNA) recommendations for the proposed use. The planning Authority may grant exceptions to the lighting standards with the finding that the light impacts do not create a public nuisance for abutting residential property. Unless otherwise specified below, exterior lighting shall conform to the recommendations put forth in Lighting for Exterior Environments RP-33-14, or its successor, published by the Illuminating Engineering Society of North America (IESNA). Lighting fixtures other than full cut-off fixtures may be allowed only if acceptable luminaires shall include internal and/or external glare control louvers and installed so as to minimize uplight and offsite light trespass.

RESPONSE: The proposed lighting conforms to the recommendations published in Lighting for Exterior Environments RP-33-14

The following exceptions to the City of Portland Technical Manual are requested:

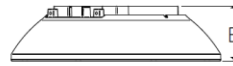
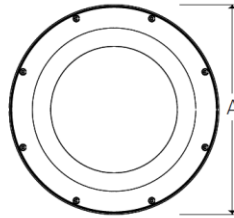
- Paragraph 12.3.2
Proposed average illuminance at the marine port loading/unloading area:
2.4 footcandles (rev. 05/11/20)
Proposed average illuminance at the marine port loading/unloading dock area:
3.0 footcandles (rev. 05/11/20)
- Paragraph 12.3.3
Proposed lumen rating for Type S4D pole lights at the marine port loading/unloading area:
30,400 lumens (rev. 05/11/20)
Proposed lumen rating for Type S4E pole lights at the marine port loading/unloading area:
25,913 lumens (rev. 05/11/20)
- Paragraph 12.3.8
Proposed luminaire height for Type S4D and Type S4E pole lights at the marine port loading/unloading area:
34 feet (rev. 05/11/20)

Maine Port Authority Cold Storage Facility
Portland, Maine
June 1, 2020

PROPOSED SITE LIGHTING LUMINAIRES AND LIGHTING POLES

- TYPE S1A:** UNDER-CANOPY LIGHTS WITH AN IES TYPE 5QW DISTRIBUTION PATTERN.
- TYPE S2A:** WALL LIGHTS ABOVE ENTRANCE/EXIT DOORS.
- TYPE S2B:** WALL LIGHTS ILLUMINATING THE MARINE PORT LOADING/UNLOADING AREA. THE LUMINAIRES WILL HAVE AN IES FORWARD THROW DISTRIBUTION PATTERN AND WILL BE DIMMED TO 65% RATED OUTPUT (*rev. 05/11/20*).
- TYPE S4A:** POLE LIGHT WITH 18-FOOT TALL POLE INSTALLED ON A CONCRETE FOUNDATION BASE WITH 6-INCHES OF THE BASE EXPOSED ABOVE GRADE. THE LIGHTING POLE TO INCLUDE A 24" BRACKET ARM. THE LUMINAIRE WILL HAVE AN IES TYPE 3 DISTRIBUTION PATTERN AND WILL BE DIMMED TO 50% RATED OUTPUT ALONG THE FRONT ACCESS DRIVE, AND TO 75% ALONG THE REAR ACCESS DRIVE (*rev. 05/11/20*).
- TYPE S4C:** POLE LIGHT WITH 16-FOOT TALL POLE INSTALLED ON A CONCRETE FOUNDATION BASE WITH 30-INCHES OF THE BASE EXPOSED ABOVE GRADE. THE LIGHTING POLE TO INCLUDE A 24" BRACKET ARM. THE LUMINAIRE WILL HAVE AN IES TYPE 4W DISTRIBUTION PATTERN AND WILL BE DIMMED TO 70% RATED OUTPUT.
- TYPE S4D:** POLE LIGHT WITH 30-FOOT TALL POLE INSTALLED ON A CONCRETE FOUNDATION BASE WITH 48-INCHES OF THE BASE EXPOSED ABOVE GRADE. THE LIGHTING POLE TO INCLUDE A 96" BRACKET ARM. THE LUMINAIRE WILL HAVE AN IES TYPE 4W DISTRIBUTION (*rev. 05/11/20*).
- TYPE S4E:** POLE LIGHT WITH 30-FOOT TALL POLE INSTALLED ON A CONCRETE FOUNDATION BASE WITH 48-INCHES OF THE BASE EXPOSED ABOVE GRADE. THE LIGHTING POLE TO INCLUDE A 96" BRACKET ARM. THE LUMINAIRE WILL HAVE AN IES TYPE 4W DISTRIBUTION (*rev. 05/11/20*).

SRT1 EDGE-LIT



A	B	Weight
12" (304mm)	3.1" (78mm)	8lbs (3.6kg)

- For ceiling mount and parking garage applications from an 8–15 foot mounting height
- Edge-lit flat lens for optimal visual comfort and uniformity across the lens
- Two optical distributions specifically design for parking garage and canopy applications are available making the Beacon Edge-Lit luminaire both versatile and functional
- UL/cUL listed for wet locations, IP65 and 3G vibration rated
- Occupancy sensor available for complete on/off and dimming operation

HOUSING

- Die-cast aluminum housing ensures long electrical component life and luminaire performance
- Corrosion resistant powder coat finish both protects and provides architectural appearance
- One piece molded silicone gasket ensures weather proof seal
- Thermally isolated driver mounted to dedicated bracket reduces operating temperatures and increases driver life and reliability

OPTICS

- Edge-lit acrylic light guide provides blended non-pixelated light for unprecedented visual comfort
- Choice of multiple light outputs with lumen range of 2500–6000
- Two distribution types: Type 5 Square Wide, Type 5 Concentrated
- Wide variety of CCT's and CRI's offered: 3000K (70CRI), 3000K (80CRI), 3500K (80CRI), 4000K (70CRI), 4000K (80CRI) or 5000K (70 CRI) CCT

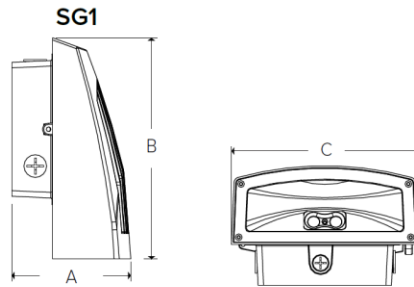
Series	Engine	CCT	Distribution	Voltage	Color/Finish
SRT1 Edge-Lit Parking Garage Size 1	20 20W Nominal 2500 lm 35 35W Nominal 4000 lm 55 55W Nominal 6000 lm	3K7 3000K, 70 CRI 3K8 3000K, 80 CRI 35K7 3500K, 80 CRI 4K7 4000K, 70 CRI 4K8 4000K, 80 CRI 5K7 5000K, 70 CRI	5QW Type 5 Square Wide 5C Type 5 Concentrated	UNV 120V-277V 120 120V 208 208V 240 240V 277 277V	BL Textured Black DB Textured Dark Bronze GT Graphite Textured GYS Smooth Gray PS Smooth Plat. Silver

Nominal Watts	Nominal Lumens	Distribution	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 70 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
20	3000	5C	3093	136.86	1	0	1	3078	136.21	1	0	1	2960	130.97	1	0	1
		5QW	2974	131.60	1	0	1	2960	130.97	1	0	1	2846	125.93	1	0	1

Type S1A: 5QW Distribution



SLING SERIES



A	B	C	Weight
4.19" (107mm)	7.80" (198mm)	6.61" (168mm)	4.4lbs (2kg)

HOUSING

- Rugged die-cast aluminum housing with corrosion resistant powder coat finish
- Heating dissipating fins provide superior thermal performance extending the life of the electronic components
- Impact resistant tempered glass offers zero uplight
- Comfort lens available as an option or accessory to reduce glare (7-10% lumen reduction) and provide better uniformity

OPTICS

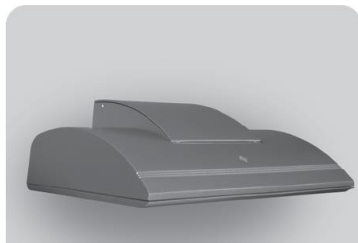
- 3000K, 4000K and 5000K CCT nominal with 70 CRI
- Smaller SG1 housing has 2 LEDs, larger SG2 housing has 3 LEDs

- SG1 Series replaces from 100W-150W HID; SG2 Series replaces from 150W-250W HID
- Comfort lens available as an option or accessory provides glare control and enhanced uniformity
- Knuckle and trunnion accessory mounting kits available for flood applications
- IP65 and certified to UL 1598 for use in wet locations up to 40°C ambient
- DLC (DesignLights Consortium Qualified - see www.designlights.org)

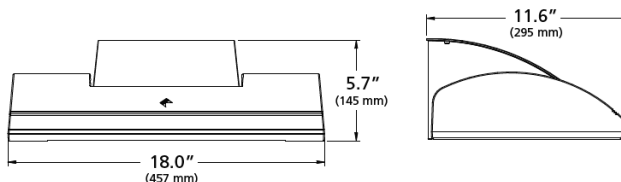
Housing	CCT/CRI	Distribution	Voltage	Color/Finish	Control Options	Options
SG1-10 Size 1, 10W	3K7 3000K, 70 CRI	FT Fwd Throw	UNV 120V-277V	DB Textured Dark Bronze	PCU Universal Button Photocontrol (120-277V)	CS Comfort Lens
SG1-20 Size 1, 20W	4K7 4000K, 70 CRI		120 120V	BL Textured Black	SCP ^{1,2,3} Occupancy Sensor Programmable (Dim)	E ^{1,2} Battery 0°C
SG1-30 Size 1, 30W	5K7 5000K, 70 CRI		277 277V	WH Textured White	SWP ^{1,2} SiteSync Pre-commission	EH ^{1,2} Battery w/ heater -20°
SG1-40 Size 1, 40W			UHV 347V-480V	GYS Smooth Gray	SWPM ^{1,2} SiteSync Pre-commission w/ Sensor	
SG2-50 Size 2, 50W				PS Smooth Plat. Silver	Specify MTG HT for SCO/SCP & SWPM	
SG2-80 Size 2, 80W				CC Custom Color	8F Up to 8'	
					20F Up to 20'	

Description	# of LEDs	Drive Current	System Watts	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 80 CRI)				
				Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
SG1-10	2	140mA	11	1349	122	1	0	0	1424	129	1	0	0	1003	91	1	0	0
SG1-20	2	250mA	21	2449	115	1	0	0	2310	110	1	0	0	2054	95	1	0	0





Wall Director® Medium



Housing

- Optical housing is a one-piece, die-cast low copper (<0.6%) aluminum alloy with integral heat sink. The housing rotates against mounting arm housing to provide -5° to 10° of adjustment with degree markers cast into the housing. At 0° adjustment, lens is totally concealed from view above horizontal with fixture mounted in the downward position.
- Mounting arm housing is one-piece die-cast, low copper (<0.6%) aluminum alloy with provisions for tilt mechanism. Mounting arm fastens to the mounting plate with keyhole slots freeing both hands for securing and wiring. One stainless steel socket-head screw on the tilt mechanism frees the optical housing to rotate for aiming. Tightening the screws locks the housing and lens frame together with sealing provided by a silicone gasket. For visual aiming, adjustment may be accomplished with the fixture on.
- Lens Frame is a one-piece, die-cast low copper (<0.6%) aluminum alloy with integral cooling fins to dissipate driver thermal.
- Luminaire housing shall be free of any visible heat fins, hardware or fasteners.
- Bracketry and hardware shall be stainless steel.

Specifications

- Luminaire shall be capable of operating at 100% brightness in a 40°C environment. Both driver and optical array shall have integral thermal protection that will dim the luminaire upon detection of temperatures in excess of 85°C.
- luminaires not configured with a control system shall be provided with 0-10 purple and gray dimming leads.

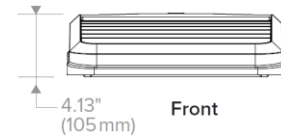
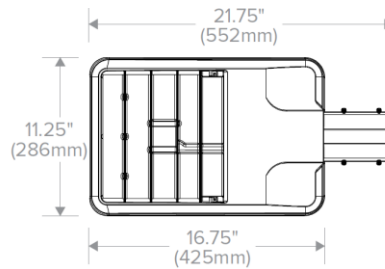
Fixture	Mounting	Source	Wattage	Light Engine	Distribution	Voltage
WDM Wall Director Medium	D Down U¹ Up	48L 48 LEDs	55 55 Watts 65 65 Watts 85 85 Watts 105 105 Watts 130 130 Watts	3K7 3000K/70CRI 3K8 3000K/80CRI 4K7 4000K/70CRI 4K8 4000K/80CRI 5K7 5000K/70CRI	1 Type I 2 Type II 3 Type III 4W Type IV Wide 4F Type IV Forward WG² Wall Graze SP Spot/Column FTD² Forward Throw Diffuse WTD² Wide Throw Diffuse	UNV 120-277V 347 347V 480 480V

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K					4000K					5000K				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
48L	10,000	88	Clear Lens	1	11194	1	0	1	127	11476	1	0	1	130	11607	1	0	1	132
				2	10601	2	0	2	120	10867	2	0	2	123	10991	2	0	2	125
				3	10779	1	0	2	122	11050	1	0	2	126	11177	1	0	2	127
				4F	10576	1	0	2	120	10842	1	0	2	123	10966	1	0	2	125
				4W	10285	2	0	2	117	10544	2	0	2	120	10665	2	0	2	121
				SP	11870	5	0	1	135	12168	5	0	1	138	12308	5	0	1	140
			Diffuse Lens	WG	10695	3	0	1	122	10964	3	0	1	125	11090	3	0	1	126
				FTD	9300	2	0	2	106	9534	2	0	2	108	9643	2	0	2	110
				WTD	10065	2	0	2	114	10318	2	0	2	117	10436	2	0	2	119

KIMLIGHTING



VIPER S



CONSTRUCTION

- Manufactured with die cast aluminum
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements
- IFS polyester powder-coat electrostatically applied and thermocured. IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish
- The finish meets the AAMA 2604 performance specification which includes passing a 3,000-hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds
- External hardware is corrosion resistant

OPTICS

- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one-piece optical system
- One-piece silicone gasket ensures a weatherproof seal around each individual optic
- One-piece optical cartridge system consisting of an LED engine, optics, gasket and stainless steel bezel

VPS	LED Engine	CCT/CRI ⁷	Distribution	Rotation	Voltage
Series					
VPS Viper Small	24L-55 55W, LED array 36L-65 65W, LED array 36L-80 80W, LED array 48L-110 110W, LED array 60L-136 136W, LED array	3K7 3000K, 70 CRI 4K7 4000K, 70 CRI 5K7 5000K, 70 CRI	FR Type 1/Front Row 2 Type 2 3 Type 3 4 Type 4 4W Type 4 Wide 5QM Type 5QM	Blank No rotation L Optic rotation left ⁵ R Optic rotation right ⁵	UNV 120-277V 347 347V 480 480V
Mounting	Color	Control Options			
A Rectangular Arm (formerly RA) for square or round pole MAF Mast Arm Fitter (formerly SF2) for 2 3/8" OD horizontal arm K Knuckle (formerly PK2) limit to 30° tilt or 2 3/8" OD horizontal arm or vertical tenon	BL Black Textured DB Dark Bronze Textured GYS Light Gray Smooth PS Platinum Silver Smooth	7PR 7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others) 7PR-SC 7-Pin Receptacle w/Shorting Cap 7PR-TL 7-Pin Receptacle w/Twist-Lock® photo control			

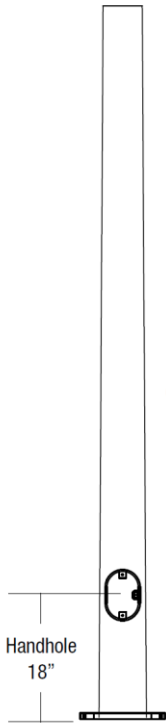
DELIVERED LUMENS

# of LEDs	DRIVE CURRENT (mA)	SYSTEM WATTS	DISTRIBUTION TYPE	5K (5000K nominal, 70 CRI)					4K (4000K nominal, 70 CRI)					3K (3000K nominal, 70 CRI)				
				LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G
24	700 mA	55W	FR	6357	118	1	0	1	6486	120	1	0	1	5804	107	1	0	1
			2	6132	114	1	0	1	6257	116	1	0	2	5599	104	1	0	1
			3	6015	111	1	0	2	6137	114	1	0	2	5492	102	1	0	2
			4	5921	110	1	0	2	6034	112	1	0	2	5400	100	1	0	2
			4W	5793	108	1	0	2	5909	110	1	0	2	5272	98	1	0	2

Type S4A: 3 Distribution; Type S4C: 4W Distribution



TYPES S4A & S4C



CONSTRUCTION

- SHAFT: One-piece tapered aluminum with round cross section, made of 6061-T6 shaft and 356-T6 cast aluminum base

GROUP 2

- ANCHOR BOLTS: Supplied with (4) galvanized anchor bolts with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling
- BOLT COVER: Four individual bolt covers provided
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HANDHOLE: 4" X 6" handhole opening with cover and grounding provision handhole 3" x 5" for 20' pole. The handhole is located 18" from the base of the pole.

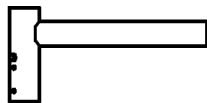
FINISH

- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Decorative finish coat available in six standard colors; Custom colors available, RAL number preferred

MOUNTING	DRILL PATTERN	FINISH	OPTIONS
1 Single arm mount	B1 Cruzer, "AM" arm	DB Dark Bronze Textured	GFI' 20 Amp GFCI Receptacle and Cover
2 Two fixtures at 180°	B3 2 bolt (2-1/2" spacing Viper "A" arm)	BBT Basic Black Textured	EHH' Extra Handhole
2L Two fixtures at 90°		BL Black Textured	C05' .5" Coupling
3T Three fixtures at 90°	S2 2 bolt (3-1/2" spacing Viper "AD" arm)	BZT Bronze Textured	C07' .75" Coupling
3Y Three fixtures at 120°		WH White Textured	C20' 2" Coupling
4 Four fixtures at 90°		PS Platinum Silver Smooth	VM2 2nd mode vibration damper
TA Tenon (2.375" OD)		GT Graphite Textured	LAB Less Anchor Bolts
TB Tenon (2.875" OD)		GYS Gray Smooth	
TC Tenon (3.5" OD)		CC Custom Color	
OT Open Top (includes pole cap)			

Catalog Number	Height		Nominal Shaft Dimensions	Wall Thickness	Bolt Circle	Bolt Circle Range	Base Plate Size	Base Plate Shape	Anchor bolt size	Bolt Projection	Pole weight
	Feet	Meters									
Group 1											
RTA-B-10-40-A	10	3.0	4" x 3"	.125"	7"	-	7.25	Triangular	3/4x17x3"	3.25"	24
RTA-B-12-40-A	12	3.7	4" x 3"	.125"	7"	-	7.25	Triangular	3/4x17x3"	3.25"	27
RTA-B-14-40-A	14	4.3	4" x 3"	.125"	7"	-	7.25	Triangular	3/4x17x3"	3.25"	32
RTA-B-16-50-A	16	4.9	5" x 3"	.125"	8"	-	8.31	Triangular	3/4x17x3"	3.25"	35
RTA-B-18-50-A	18	5.5	5" x 3"	.125"	8"	-	8.31	Triangular	3/4x17x3"	3.25"	42

SPOKE TYPE BRACKETS



CONFIGURATION	LENGTH	POLE TENON SIZE	COLOR
1	8"	PT20 2" pipe tenon (2.38" O.D.)	DB Dark bronze textured
2-180	12"	PT25 2.5" pipe tenon (2.88" O.D.)	BL Black textured
2-90	18"	PT35 3.5" pipe tenon (4.0" O.D.)	WH White textured
3-120	24"		GR Gray textured
3-90	30"		PS Platinum silver smooth
4-90			GYS Light gray smooth

Type S4A: 18-Foot Pole with 6-Inches Exposed of Concrete Foundation Base

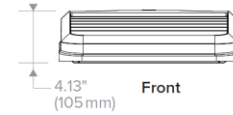
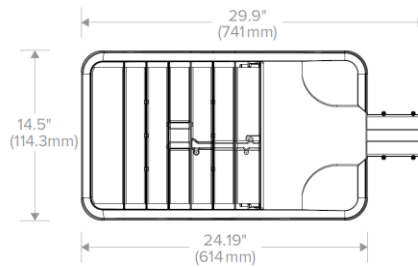
Type S4C: 16-Foot Pole with 30-Inches Exposed of Concrete Foundation Base



TYPES S4D & S4E



VIPER S



CONSTRUCTION

- Manufactured with die cast aluminum
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements
- IFS polyester powder-coat electrostatically applied and thermocured. IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish
- The finish meets the AAMA 2604 performance specification which includes passing a 3,000-hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds
- External hardware is corrosion resistant

OPTICS

- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one-piece optical system
- One-piece silicone gasket ensures a weatherproof seal around each individual optic
- One-piece optical cartridge system consisting of an LED engine, optics, gasket and stainless steel bezel

Series	LED Engine	CCT/CRI ⁷	Distribution	Rotation	Voltage
VPL Viper Large	64L-135 135W LED array 80L-180 180W LED array 80L-235 235W LED array 96L-220 220W LED array 96L-280 280W LED array 96L-315 315W LED array 96L-395 395W LED array	3K7 3000K, 70 CRI 4K7 4000K, 70 CRI 5K7 5000K, 70 CRI	FR Type 1/Front Row 2 Type 2 3 Type 3 4 Type 4 4W Type 4 Wide 5QM Type 5QM 5QN Type 5QN	Blank No rotation L Optic rotation left ⁵ R Optic rotation right ⁵	UNV 120–277V 347 347V 480 480V
Mounting	Color	Control Options			
A Rectangular Arm (formerly RA) for square or round pole MAF Mast Arm Fitter (formerly SF2) for 2 3/8" OD horizontal arm K Knuckle (formerly PK2) limit to 30° tilt	BL Black Textured DB Dark Bronze Textured GYS Light Gray Smooth	7PR 7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others) 7PR-SC 7-Pin Receptacle w/Shorting Cap			

Type S4D: 96L 395
(rev. 05/11/20)

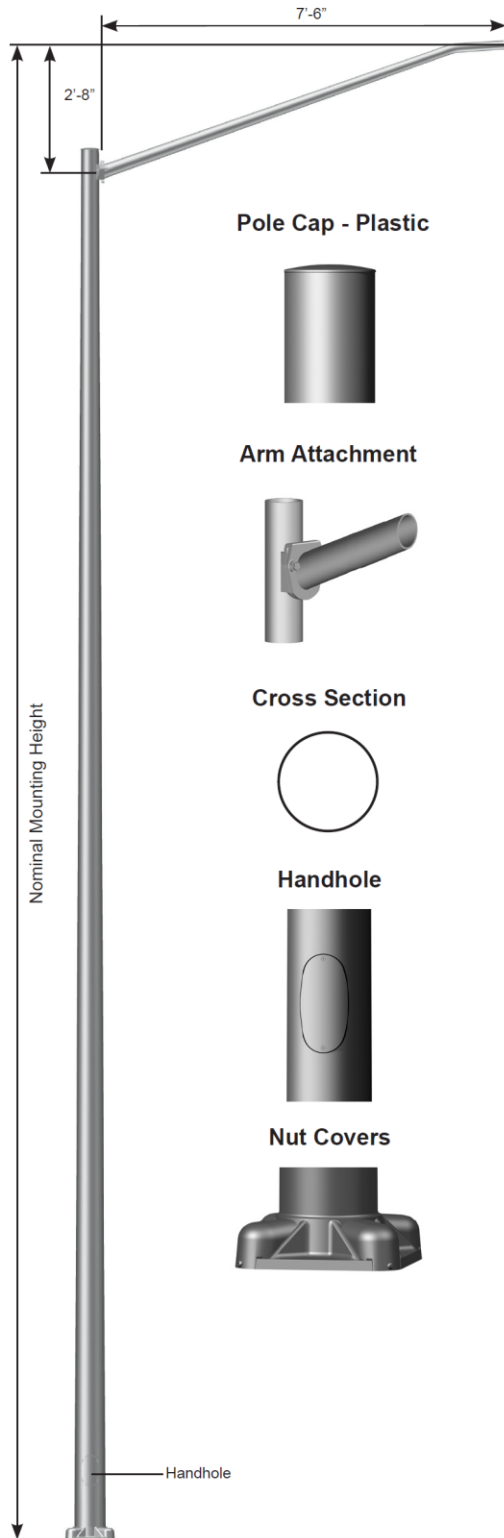
Type S4E: 96L 315
(rev. 05/11/20)



DELIVERED LUMENS

# of LEDs	DRIVE CURRENT (mA)	SYSTEM WATTS	DISTRIBUTION TYPE	5K (5000K nominal, 70 CRI)					4K (4000K nominal, 70 CRI)					3K (3000K nominal, 70 CRI)				
				LUMENS	LPW ¹	B	U	G	LUMENS	LPW ¹	B	U	G	LUMENS	LPW ¹	B	U	G
96	1000mA	315W ²	1A	35666	113	3	0	2	36769	117	3	0	2	31989	101	2	0	2
			2	33725	107	3	0	4	34768	110	3	0	4	30248	96	3	0	4
			3	33782	107	3	0	5	34827	110	3	0	5	30299	96	3	0	4
			4	33012	105	2	0	5	34033	108	2	0	5	29609	94	2	0	5
			4W	29571	94	3	0	5	30485	97	3	0	5	25913	82	2	0	5
			5QM	33785	107	5	0	3	34830	110	5	0	3	30302	96	5	0	2
			5QN	35280	112	5	0	1	36371	115	5	0	1	31643	100	5	0	1
			5R	34080	108	5	0	5	35134	111	5	0	5	30567	97	5	0	5
			5W	32302	102	5	0	4	33301	106	5	0	4	28972	92	5	0	4
			TC	30568	97	2	1	3	31513	100	3	1	3	27416	87	2	1	3
96	1225mA	395W ²	1A	39569	101	3	0	4	43125	110	3	0	3	37518	96	3	0	2
			2	39569	101	3	0	4	40793	104	3	0	4	35490	91	3	0	4
			3	39619	101	3	0	5	40845	104	3	0	5	35535	91	3	0	5
			4	38723	98	3	0	5	39921	101	3	0	5	34731	88	2	0	5
			4W	34691	86	3	0	5	35764	89	3	0	5	30400	76	3	0	5
			5QM	39623	101	5	0	3	40848	104	5	0	3	35538	90	5	0	3
			5QN	41394	105	5	0	1	42675	109	5	0	1	37127	95	5	0	1
			5R	39969	102	5	0	5	41205	105	5	0	5	35848	91	5	0	5
			5W	37877	97	5	0	4	39048	100	5	0	4	33986	87	5	0	4
			TC	35850	90	3	1	3	36959	93	3	1	3	32154	81	3	1	3





SPECIFICATIONS

Pole - The pole shaft is extruded from seamless alloy aluminum.

Pole Top - A removable pole cap is provided.

Luminaire Arm - Luminaire arms are conically tapered from seamless alloy aluminum to 2.38" OD at the luminaire end.

Luminaire Arm Attachment - Connection allows arm to be erected and held in place by gravity and secured by two bolts.

Handhole - A covered handhole with hardware and grounding provision are provided.

Base Cover - Optional decorative base covers available as special order.

Anchor Base - The anchor base is cast from 356 alloy aluminum. The completed assembly is heat-treated to a T6 temper. Aluminum nut covers are included with anchor base unless otherwise specified.

Anchor Bolts - Anchor bolts conform to ASTM F1554 Grade 55 and are provided with two hex nuts and two flat washers. Bolts have an "L" bend on one end and are galvanized a minimum of 12" on the threaded end.

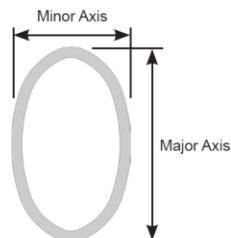
Hardware - All structural and non-structural fasteners are stainless steel.

Finish - The standard finish for the pole assembly and components is satin brushed, natural anodize, duranodic or polyester powder applied coating in accordance with Valmont's Specifications. Additional finish options available upon request.

Design Criteria - Please reference Design Criteria Specification for appropriate design conditions.

ARM DATA

Ovalized Arm Cross Section



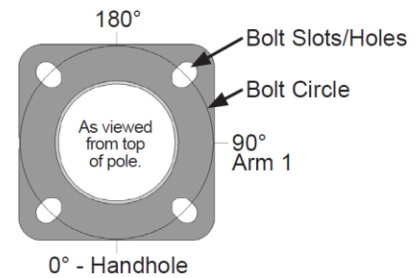
(rev. 05/11/20)

valmont 
STRUCTURES

ANCHORAGE DATA

POLE		BASE PLATE				ANCHOR BOLTS		
BASE OD (IN)	WALL THK (IN)	BOLT CIRCLE		SQUARE (IN)	THK (IN)	DIA x LENGTH x HOOK (IN)	PROJECTION (IN)	± (IN)
		DIA (IN)	± (IN)					
6.00	0.156	9.50	0.75	10.32	0.630	0.75 x 17.00 x 3.00	3.50	N/A
6.00	0.188	9.50	0.75	10.32	0.630	0.75 x 17.00 x 3.00	3.50	N/A
7.00	0.156	10.56	0.43	11.26	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.156	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.188	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.250	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
9.00	0.156	13.25	0.75	12.48	1.250	1.00 x 36.00 x 4.00	4.13	N/A
9.00	0.188	13.25	0.75	12.48	1.250	1.00 x 36.00 x 4.00	4.13	N/A

Anchor Base Detail



LOAD AND DIMENSIONAL DATA

DESIGN INFORMATION							POLE DIMENSIONS					MODEL NUMBER
NOMINAL MOUNTING HEIGHT	MAX WEIGHT¹ (LBS)	70 MPH w/1.3 GUST	80 MPH w/1.3 GUST	90 MPH w/1.3 GUST	100 MPH w/1.3 GUST	110 MPH w/1.3 GUST	POLE HEIGHT	BASE OD (IN)	TOP OD (IN)	WALL THK (IN)	STRUCTURE WEIGHT² (LBS)	
		MAX EPA¹ (SQ FT)	MAX EPA¹ (SQ FT)	MAX EPA¹ (SQ FT)	MAX EPA¹ (SQ FT)	MAX EPA¹ (SQ FT)						
20'-0"	65	4.5	3.2	2.4	1.7	1.3	17'-8"	6.00	4.00	0.156	72	1MA0832S-170840605T4
25'-0"	50	4.5	3.2	1.9	0.8	N/A	22'-8"	6.00	4.00	0.156	86	1MA0832S-220840605T4
	60	4.5	3.2	2.4	1.7	1.0	22'-8"	6.00	4.00	0.188	98	1MA0832S-220840606T4
	65	4.5	3.2	2.4	1.7	1.3	22'-8"	7.00	4.00	0.156	94	1MA0832S-220840705T4
30'-0"	50	4.5	3.2	2.0	0.8	N/A	27'-8"	7.00	4.00	0.156	110	+1MA0832S-270840705T4
	75	4.5	3.2	2.4	1.7	1.3	27'-8"	8.00	4.50	0.156	123	1MA0832S-270845805T4
35'-0"	70	4.5	3.2	2.1	0.9	N/A	32'-8"	8.00	4.50	0.156	142	+1MA0832S-320845805T4
	75	4.5	3.2	2.4	1.7	1.2	32'-8"	8.00	4.50	0.188	166	1MA0832S-320845806T4
	75	4.5	3.2	2.4	1.7	1.3	32'-8"	8.00	4.50	0.250	211	1MA0832S-320845808T4
	75	4.5	3.2	2.4	1.7	1.3	32'-8"	9.00	4.50	0.156	157	+1MA0832S-320845905T4
	75	4.5	3.2	2.4	1.7	1.3	32'-8"	9.00	4.50	0.188	183	1MA0832S-320845906T4
39'-0"	75	4.5	3.2	1.9	0.7	N/A	36'-8"	8.00	4.50	0.188	188	+1MA0832S-360845806T4
	75	4.5	3.2	2.4	1.2	N/A	36'-8"	9.00	4.50	0.156	178	+1MA0832S-360845905T4
	75	4.5	3.2	2.4	1.7	1.3	36'-8"	8.00	4.50	0.250	239	1MA0832S-360845808T4
	75	4.5	3.2	2.4	1.7	1.3	36'-8"	9.00	4.50	0.188	207	+1MA0832S-360845906T4

- EPA represents the Effective Projected Area of each luminaire. Designs are limited to one luminaire per arm. Variations from sizes above are available upon inquiry at the factory. Satisfactory performance of poles is dependent upon the pole being properly attached to a supporting foundation of adequate design.
 - Structure weight is a nominal value which includes the pole shaft, base plate and luminaire arm(s).
- + Pole includes factory installed vibration damper.

PRODUCT ORDERING CODES

CROSS SECTION	MODEL NUMBER	COLOR		OPTIONS
R			—	
R = Round	1MA0832S-170840605T4 1MA0832S-220840605T4 1MA0832S-220840606T4 1MA0832S-220840705T4 +1MA0832S-270840705T4 1MA0832S-270845805T4 +1MA0832S-320845805T4 1MA0832S-320845806T4	Polyester Powder DWH = White DSS = Sandstone BR = Burgundy HG = Hunter Green DNA = Natural Aluminum DCG = Charcoal Gray DMR = Medium Bronze	Anodized 204 = Clear Natural 311 = Light Bronze* 312 = Medium Bronze* 313 = Dark Bronze* 335 = Black* *Duranodic Anodize	See Accessories at valmontstructures.com (Please Specify with Code)

Type S4D & Type S4E: 30-Foot Pole with 48-Inches Exposed of Concrete Foundation Base (rev. 05/11/20)



4. EVIDENCE OF RIGHT, TITLE AND INTEREST

As noted on the survey, the Cold Storage Facility will be located on a parcel of land currently owned by the Maine Port Authority. A copy of the deed and the Option to Ground Lease Agreement, which serves as evidence of right, title, and interest, has been attached to this Section.

4.1 ATTACHMENTS

- Deed of Convenience, dated March 11, 2020, Cumberland County Registry of Deeds, Book 36501, Pg 146.
- Option to Ground Lease Agreement, dated March 12, 2020, between Maine Port Authority and Maine International Cold Storage Facility LLC.

DEED OF CONVENIENCE

The **STATE OF MAINE**, acting by and through its **DEPARTMENT OF TRANSPORTATION** (the "Grantor" or "MaineDOT"), under and pursuant to the provisions of 23 M.R.S. § 4424, for consideration, hereby **TRANSFERS** all its right, title and interest in and to land and rights in land situated on the southerly side of West Commercial Street in the City of Portland, County of Cumberland, State of Maine, as further described herein to **THE MAINE PORT AUTHORITY**, a body both corporate and politic in the State of Maine (the "Grantee" or "MPA"), having a mailing address of 460 Commercial Street, Portland, Maine 04101.

Said property (the "Premises") is more particularly described in the attached **Exhibit A Legal Description** and shown on the attached **Exhibit B Plans**, being copies of the following MaineDOT Right of Way Maps:

- A. Plan entitled "State of Maine Department of Transportation Right of Way Map, Land Acquisition Plan Part II, West Commercial Street, Portland, Cumberland County, Maine" dated April 25, 2014 and recorded in Plan Book 219, Page 37 of the Cumberland County Registry of Deeds, and being further identified in MaineDOT's records as D.O.T. File No. 3-596.
- B. Plan entitled "State of Maine Department of Transportation Right of Way Map, Land Acquisitions, West Commercial Street, Portland, Cumberland County, Maine" dated April 2014, revised March 9, 2020 and recorded in Plan Book 220, Page 63 of said Registry of Deeds and being further identified in MaineDOT's records as D.O.T. File No. 3-595.

The Premises are conveyed **SUBJECT TO** the following:

1. All easements and encumbrances of record;
2. All Certificates of Completion, all recorded covenants and restrictions, and all conditions and protections affecting the Premises as set forth in the records of the Maine Department of Environmental Protection's ("DEP") Voluntary Response Action Program ("VRAP") referencing the former Portland Gas Works site. Recorded covenants and restrictions encumbering the property include the following:
 - a. Declaration of Environmental Covenant dated May 24, 2015 and recorded in Book 32334, Page 6 of said Registry of Deeds;
 - b. Declaration of Environmental Covenant dated September 18, 2019 and recorded in Book 36025, Page 267 of said Registry of Deeds; and
 - c. Declaration of Environmental Covenant dated September 18, 2019 and recorded in Book 36025, Page 291 of said Registry of Deeds.
3. The condition subsequent that, in the event MPA no longer uses the Premises for port-related transportation purposes, MaineDOT shall have the right, upon sixty (60) days prior written notice, to reenter and retake the Premises, and MPA shall surrender

Deed of Convenience
MaineDOT to Maine Port Authority
Portland, Maine

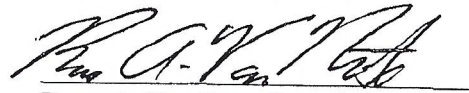
the same and execute any documentation that MaineDOT reasonably requires to evidence the vesting of fee simple title in Maine DOT.

4. The condition that MPA shall not convey the Premises, or any portion thereof, to a third party without obtaining MaineDOT's prior written permission, which shall be granted at MaineDOT's sole discretion.
5. The terms of an existing Easement Agreement between MaineDOT and Northern Utilities, Inc. d/b/a Unitil dated December 15, 2016 and recorded in Book 33716, Page 257 of said Registry of Deeds.
6. All utility easements and installations of record and located on the Premises and to those rights that any utility enjoys over the Premises for maintenance, location or relocation of poles and other installations.

The Grantor makes no representations or warranties with respect to the Premises conveyed. The representations and warranties so excluded encompass, but are not limited to, those pertaining to: land use and environmental matters; fitness of the Premises or any portion thereof for any particular purpose; water quality or quantity; the condition or quality of the soil; inchoate or unrecorded liens; or the existence, status, or condition of access to, or public utilities serving the Premises. Any subsequent use of, improvement to, or construction on the parcel is subject to all applicable laws, regulations, ordinances, and permitting requirements.

IN WITNESS WHEREOF, the said State of Maine, acting by and through its Department of Transportation, has caused this instrument to be executed by Bruce A. Van Note, its Commissioner, thereunto duly authorized this 11th day of March in the year two thousand twenty.

STATE OF MAINE
Department of Transportation

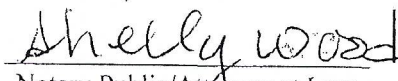

Bruce A. Van Note, Commissioner

STATE OF MAINE
County of Kennebec

March 11, 2020

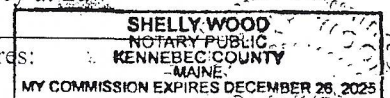
Personally appeared the above-named Bruce A. Van Note, Commissioner of the Maine Department of Transportation, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of the State of Maine.

Before me,


Notary Public/Attorney at Law

Print name:

My commission expires:



Deed of Convenience
MaineDOT to Maine Port Authority
Portland, Maine



EXHIBIT A
Legal Description

THREE CERTAIN PARCELS OF LAND, together with any improvements held by the Grantor thereon and not otherwise excepted or excluded herein, situated on the southerly side of West Commercial Street in the City of Portland, County of Cumberland and State of Maine described as follows (the "Premises") and depicted on the attached **Exhibit B Plans** (the "Right of Way Maps"):

PARCEL ONE:

All land, and rights in land located within the following described boundaries:

COMMENCING at a granite monument found in a manhole located in the southerly sideline of West Commercial Street about 393' northerly of the intersection of the said West Commercial Street and Clark Street, as shown on said Right of Way Map;

THENCE S 32°36'10" W along the southerly sideline of West Commercial Street 86.09 feet to the **point of beginning**, said point being the northeasterly corner of property conveyed by Portland Terminal Company to New Yard, LLC by deed dated July 31, 2013 and recorded in Book 30887, Page 247 of the Cumberland County Registry of Deeds;

THENCE from said point of beginning S 32°31'38" E along the westerly line of land now or formerly of the City of Portland 580 feet, more or less to mean low water;

THENCE westerly and southwesterly along mean low water 64 feet, more or less, to a point on the easterly line of land now or formerly of Casco Wharf & Storage as described in Book 1507, Page 126 of said Registry of Deeds (which is a part of the parcel herein described);

THENCE S 32°31'38" E along said easterly line of said Casco Wharf & Storage 50 feet more or less to the Former Harbor Commissioner's Line of 1929;

THENCE S 37°45'10" W along said Harbor Commissioner's Line 600 feet, more or less to a point;

THENCE S 62°18'00" W along said Harbor Commissioner's Line 400 feet, more or less, to a point;

THENCE S 78°39'00" W along said Harbor Commissioner's Line 117 feet, more or less, to the southerly corner of a parcel shown on said Right of Way Map as "Parcel 5";

Deed of Convenience
MaineDOT to Maine Port Authority
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THENCE N 21°46'06" W 60 feet, more or less, to the mean low water line as shown on said Right of Way Map;

THENCE continuing N 21°46'06" W 105 feet, more or less, through land now or formerly of New Yard, LLC to the southerly corner of a parcel of land formerly owned by Northern Utilities, Inc., d/b/a Until;

THENCE N 43°25'17" W along the westerly boundary of said land formerly of said Northern Utilities (which is a part of the parcel herein described) and the easterly boundary of land now or formerly of said New Yard, LLC 435.50 feet to the northwest corner of said former Northern Utilities parcel and a point that represents the northeast corner of said land now or formerly of said New Yard, LLC;

THENCE S 70°47'58" W along the northerly boundary of said land now or formerly of said New Yard, LLC 381.52 feet to land formerly of Portland Terminal Company and Maine Central Railroad Company and now of the State of Maine as described in a Notice of Condemnation recorded in Book 31408, Page 301 of said Registry of Deeds (said land now of the State of Maine being Parcel Two described herein);

THENCE N 16°58'37" W along land of the State of Maine and now or formerly owned by Portland Terminal Company and Maine Central Railroad Company 149.35 feet to the southerly side of West Commercial Street;

THENCE N 73°01'23" E along the southerly sideline of said West Commercial Street 1053.20 feet to a point;

THENCE N 32°36'10"E along the southerly sideline of said West Commercial Street 551.51 feet to the **point of beginning**.

The above described parcel contains 18 acres, more or less.

EXCEPTING FROM THE ABOVE DESCRIBED PARCEL any existing gas facilities, including without limitation, natural gas and propane pipelines, buildings, associated fixtures and related appurtenances, improvements and other personal property that are owned by or are in the custody and control of Northern Utilities, Inc., d/b/a Until.

MEANING AND INTENDING TO CONVEY all rights acquired by the Grantor through the following:

- a. Notice of Condemnation filed in said Registry of Deeds on April 30, 2014 in Book 31470, Page 191 of said Registry of Deeds; and

Deed of Convenience
MaineDOT to Maine Port Authority
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- b. Notice of Condemnation filed in said Registry of Deeds on May 11, 2016 in Book 33101, Page 252 of said Registry of Deeds

PARCEL TWO:

All land and rights in land within the following described boundaries:

COMMENCING at a point on the southerly sideline of West Commercial Street at the northwesterly corner of land now or formerly of New Yard, LLC recorded in the Cumberland County Registry of Deeds in Book 30887, Page 247;

THENCE, S 16°58'37" E along the westerly line of land of said New Yard, LLC 90.30 feet to the **point of beginning**;

THENCE from said point of beginning S 16°58'37" E continuing along the westerly line of land of New Yard, LLC 67.90 feet;

THENCE the following courses and distances through land of Maine Central Railroad Company:

S 66°19'39" W for a distance of 57.45 feet;
S 62°41'27" W for a distance of 125.13 feet;
S 59°26'10" W for a distance of 495.19 feet;

THENCE, along a curve to the right with a radius of 725.74 feet, having an arc length of 165.42 feet, having a chord bearing of S 65°57'58" W and chord length of 165.07 feet;

THENCE, S 72°29'45" W for a distance of 519.07 feet;

THENCE, along a curve to the right with a radius of 725.78 feet, having an arc length of 185.34 feet, having a chord bearing of S 79°48'41" W and chord length of 184.84 feet;

THENCE, S 87°07'38" W for a distance of 21.45 feet to a point;

THENCE, S 02°52'22" E for a distance of 26 feet, more or less, to the spring high tide line;

THENCE, generally westerly along the spring high tide line 1316 feet, more or less, to land now or formerly of Cianbro Corp. recorded in said Registry of Deeds in Book 3424, Page 116, being on a bearing of S 74°55'10" W a distance of 1075.68 feet from the last mentioned point;

THENCE, the following courses and distances along land of said Cianbro Corp.:

N 16°59'42" W for a distance of 171.32 feet;
S 79°48'18" W for a distance of 347.84 feet;

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N 16°59'42"W for a distance of 53.00 feet to the southerly sideline of Cassidy Point Road;

THENCE, N 73°00'18" E along the southerly sideline of Cassidy Point Road 263.93 feet to the southerly sideline of West Commercial Street;

THENCE, N 82°56'03" E continuing along the southerly sideline of West Commercial Street 543.92 feet to an angle point;

THENCE, N 77°41'31" E continuing along the southerly sideline of West Commercial Street 16.88 feet;

THENCE, the following courses and distances through land of Maine Central Railroad Company:

N 84°41'57" E for a distance of 219.48 feet;

N 86°01'33" E for a distance of 312.82 feet;

N 87°07'38" E for a distance of 273.21 feet;

N 72°29'45" E for a distance of 542.24 feet;

THENCE, along a curve to the left with a radius of 673.74 feet, having an arc length of 153.57 feet, having a chord bearing of N 65°57'58" E and chord length of 153.24 feet;

THENCE, N 59°26'10"E a distance of 693.10 feet to the point of beginning.

The above described parcel contains 5.0 acres, more or less.

EXCEPTING FROM THE ABOVE DESCRIBED PARCEL the premises conveyed by the State of Maine to Cianbro Corporation by Governor's Deed dated January 8, 2015 and recorded in Book 32199, Page 285 of said Registry of Deeds containing 5780 square feet, more or less.

MEANING AND INTENDING TO CONVEY all rights acquired by the Grantor through its Notice of Condemnation filed in said Registry of Deeds on March 27, 2014 in Book 31408, Page 301 of said Registry of Deeds, excepting the aforementioned premises conveyed to Cianbro Corporation in Book 32199, Page 285.

PARCEL THREE:

All right, title and interest in and to the intertidal and submerged lands adjoining the parcels described above and located between the spring high tide line and the Former Harbor Commissioner's Line of 1929 as shown on said Right of Way Maps and acquired by the Grantor by virtue of the above-referenced Notices of Condemnation, to the extent that such rights are not otherwise excepted herefrom.

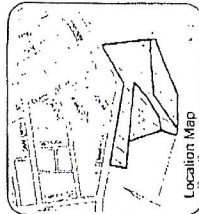
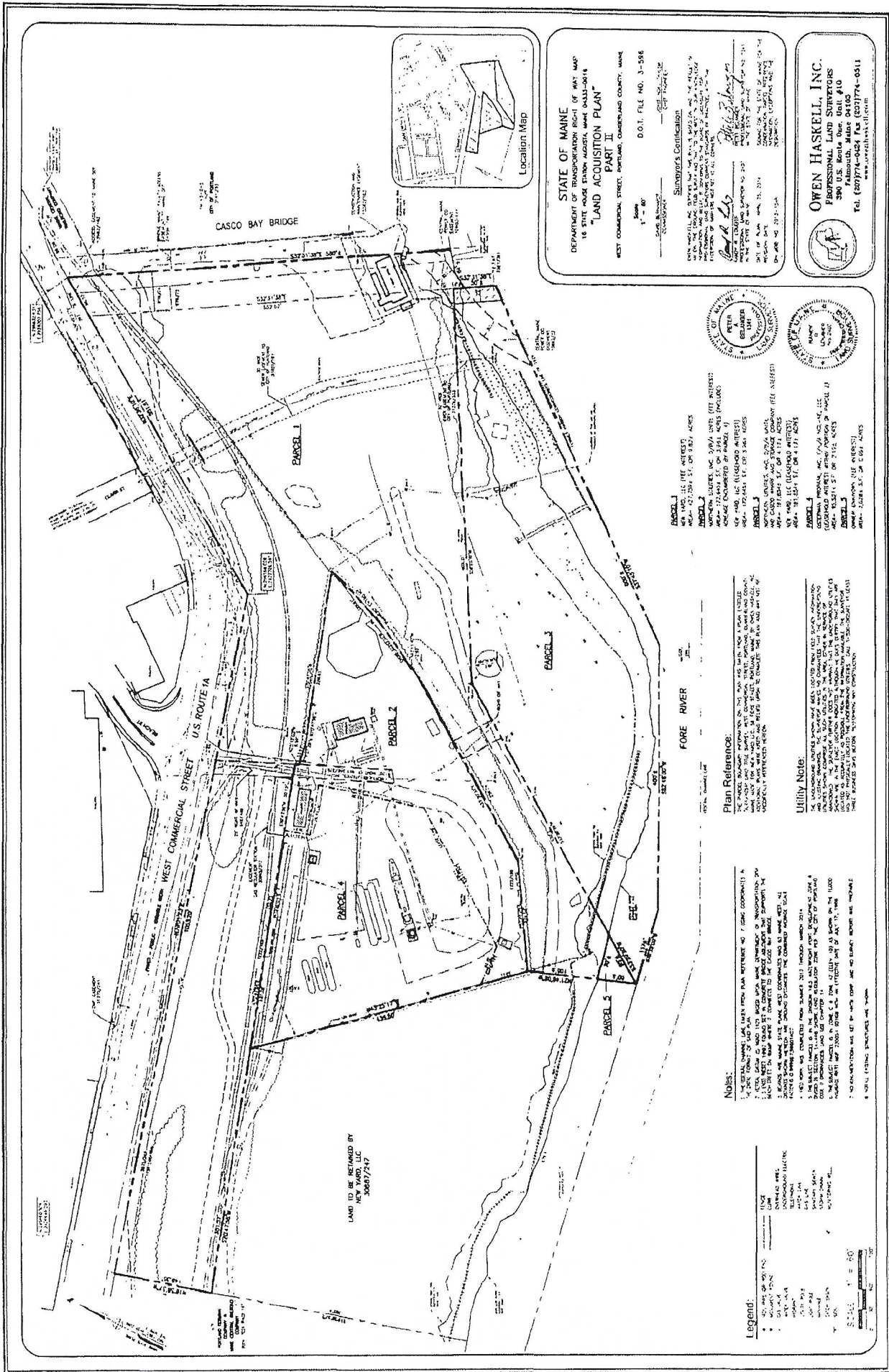
Deed of Convenience
MaineDOT to Maine Port Authority
Portland, Maine

EXHIBIT B

Plans

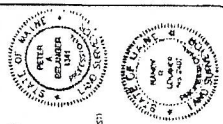
(see following two pages)

Deed of Convenience
MaineDOT to Maine Port Authority
Portland, Maine



STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP
 16 STATE ROAD STATION AUGUSTA MAINE 04303-0016
"LAND ACQUISITION PLAN"
 PART II
 WEST COMMERCIAL STREET, PORTLAND, CAMDEN AND COUNTY, MAINE
 Scale: 1" = 60'
 D.O.I. FILE NO. 3-556
 SURVEYOR'S CERTIFICATION
 I, the undersigned, being duly sworn, depose and say that the foregoing is a true and correct copy of the original map on file in the office of the State Engineer at Augusta, Maine, and that the same was prepared by me or under my direct supervision and to the best of my knowledge and belief the same is a true and correct copy of the original map on file in the office of the State Engineer at Augusta, Maine.

OWEN HASKELL, INC.
 PROFESSIONAL LAND SURVEYORS
 390 U.S. Route One, Unit #10
 Portland, Maine 04103
 Tel: (207) 774-0424 Fax: (207) 774-0511
 www.owenhaskell.com



PARCEL 1
 NEWBURY, LLC (SEE INTEREST)
 AREA: 42,728.51 S.F. OF 9.87 ACRES

PARCEL 2
 NEWBURY, LLC (SEE INTEREST)
 AREA: 172,443 S.F. OF 3.94 ACRES

PARCEL 3
 NEWBURY, LLC (SEE INTEREST)
 AREA: 172,443 S.F. OF 3.94 ACRES

PARCEL 4
 NEWBURY, LLC (SEE INTEREST)
 AREA: 172,443 S.F. OF 3.94 ACRES

PARCEL 5
 NEWBURY, LLC (SEE INTEREST)
 AREA: 172,443 S.F. OF 3.94 ACRES

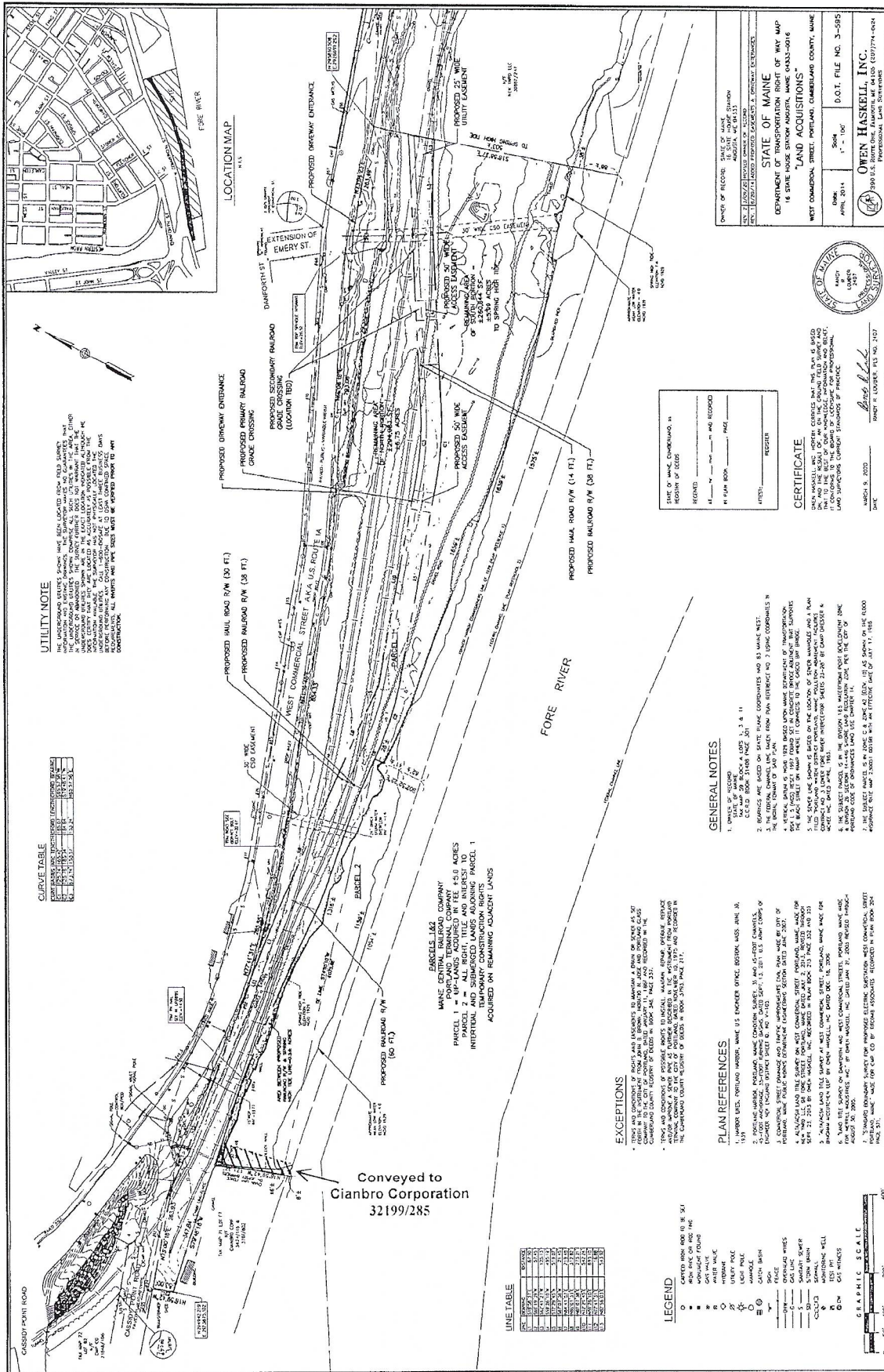
Plan Reference:
 The parcel boundary information on this map was taken from a plan (hereinafter referred to as the "Plan") which was filed in the office of the State Engineer at Augusta, Maine, on 10/15/03. The Plan was prepared by Owen Haskell, Inc. and is a true and correct copy of the original map on file in the office of the State Engineer at Augusta, Maine.

Utility Note:
 The utility lines shown on this map were taken from a plan (hereinafter referred to as the "Utility Plan") which was filed in the office of the State Engineer at Augusta, Maine, on 10/15/03. The Utility Plan was prepared by Owen Haskell, Inc. and is a true and correct copy of the original map on file in the office of the State Engineer at Augusta, Maine.

Notes:
 1. ALL DIMENSIONS ARE GIVEN FROM THE PLAN REFERENCE TO THE CORNER OF THE LOT.
 2. ALL DIMENSIONS ARE GIVEN FROM THE PLAN REFERENCE TO THE CORNER OF THE LOT.
 3. ALL DIMENSIONS ARE GIVEN FROM THE PLAN REFERENCE TO THE CORNER OF THE LOT.
 4. ALL DIMENSIONS ARE GIVEN FROM THE PLAN REFERENCE TO THE CORNER OF THE LOT.
 5. ALL DIMENSIONS ARE GIVEN FROM THE PLAN REFERENCE TO THE CORNER OF THE LOT.

Legend:
 1. 1" = 60'
 2. 1" = 60'
 3. 1" = 60'
 4. 1" = 60'
 5. 1" = 60'

LAND TO BE RETAINED BY
 NEW YARD, LLC
 306517417



Received
Recorded Register of Deeds
Mar 12, 2020 08:21:19A
Cumberland County
Nancy A. Lane

OPTION TO GROUND LEASE AGREEMENT

This OPTION TO GROUND LEASE AGREEMENT (this “**Agreement**”) is entered into as of the Effective Date by and between Owner and Optionee. In consideration of the mutual promises of the parties herein contained and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Optionee and Owner hereby agree as follows:

BASIC OPTION PROVISIONS

EFFECTIVE DATE	<u>March 12</u> , 2020.
OWNER	The Maine Port Authority, a State of Maine “body both corporate and politic,” a quasi-governmental entity created under Maine Statute at 23 M.R.S. §§ 4420-4430.
OPTIONEE	Maine International Cold Storage Facility LLC, a limited liability company.
PROPERTY	That real property consisting of the parcel(s) located in the City/Town of Portland, County of Cumberland, State of Maine, as more particularly depicted in <u>Exhibit A</u> , together with any improvements located thereon and rights, benefits and easements appurtenant to the parcel(s).
LAND	The Land is co-extensive with the Property (see Exhibit A).
OPTION PERIOD	Three (3) months from the Effective Date, which Optionee may extend for an additional period of three (3) months pursuant to <u>Section 2(a)</u> .
OPTION PAYMENT	An amount equal to 10 and 00/100 Dollars (\$10.00), to be paid up front on the Effective Date (the “ Option Payment ”).

LIST OF EXHIBITS

EXHIBIT A – Depiction of the Land (entitled “Existing Conditions,” “IMT WEST COLD STORAGE FACILITY,” July 2015)

EXHIBIT B – Letter of Intent from Amber Infrastructure Group (January 27, 2020)

EXHIBIT C – Design-Build Agreement between Maine Port Authority and Woodard & Curran Constructors, LLC (Feb. 13, 2019, and as amended May 28, 2019)(without exhibits)

EXHIBIT D– Deed of Convenience, Book 36501, Page 146 (March 11, 2020)

1. **Grant of Option.** Owner hereby grants to Optionee the exclusive option (the “**Option**”) to lease all or any portion of the Land and obtain any easements upon other portions of the Property reasonably required for access and utility connections (the “**Easements**” and together with the Land, the “**Premises**”) that Optionee deems necessary for the Project (defined below), in accordance with this Agreement. If Optionee exercises the Option in accordance with Section 3 below, the parties shall enter into the ground lease agreement (the “**Lease**”) as discussed in Section 4 below. “**Project**” shall mean the construction of the Maine International Cold Storage Facility as discussed in the Letter of Intent (attached as Exhibit B) (the “**LOI**”).

2. **Option Period and Payment.**

(a) **Option Period.** The period during which the Option may be exercised shall commence on the Effective Date and continue until the expiration of the Option Period as described in the Basic Option Provisions above. Optionee shall have the right to extend the Option Period for one (1) additional three (3) month period, provided that Optionee delivers notice to Owner of its intent to extend the Option Period at least five (5) days prior to the original expiration of the Option Period. Notwithstanding the foregoing, the Option Period shall automatically terminate upon the earlier of (i) execution of the Lease by Owner and Optionee; (ii) Optionee providing written notice of its election to cancel this Agreement (in Optionee's sole and absolute discretion); or (iii) 5:00 p.m. (in the time zone where the Property is located) on the date of expiration of the Option Period (or extended Option Period, if Optionee so extends under this section).

(b) **Option Payment.** Within twenty (20) days after the Effective Date, Optionee shall pay to Owner the Option Payment.

3. **Notice of Exercise of Option.** Optionee may exercise the Option at any time during the Option Period by delivering to Owner a written notice exercising the Option (the "**Option Notice**").

4. **Lease Agreement.** If Optionee delivers an Option Notice to Owner, then Owner and Optionee shall, in good faith, negotiate and agree to a Lease over the Property. The terms and conditions of the Lease shall in all events include the relevant sections of the LOI, unless otherwise agreed by the parties.

5. **Closing.** Upon delivery of the Option Notice to Owner in accordance with Section 3 above, the execution of the Lease by Owner and Optionee (the "**Closing**") shall take place on a date mutually agreed by the Parties.

6. **Due Diligence; Title.**

(a) **Due Diligence.** Owner has already provided Optionee with a certain Design-Build Agreement between the Maine Port Authority and Woodard & Curran Constructors, LLC (attached as **Exhibit C**, without underlying exhibits). In furtherance of providing Exhibit C and related exhibits and papers, the Owner has already shared with Optionee all documents that Owner considers relevant to analyzing the Project contemplated in the LOI (Ex. B). Optionee may, at its discretion, utilize Exhibit C and its underlying documents during the Option Period or during the follow-on project, to whatever extent the Optionee deems appropriate. Owner provided Exhibit C and its related exhibits and papers to Optionee on an as-is, where-is basis without warranty, but Owner is not aware of any information contradicting Exhibit C and its underlying exhibits. If Owner becomes aware of additional documents or information that undermine or contradict any information contained in Exhibit C, Owner will notify Optionee of the same within ten (10) days.

(b) **Title.** Optionee, at its sole cost, may obtain a preliminary title report (the "**Title Report**") and/or survey (the "**Survey**") for the Property. If Optionee, in its sole discretion, determines that the existence, use, operation, implementation, or exercise of any matters identified by the Title Report or Survey could materially delay, interfere with, impair or prevent Optionee's development, operation or financing of the Project, then Optionee may notify Owner of such issues and Owner shall cooperate with Optionee in efforts to obtain a release, subordination, non-disturbance agreement, consent, or other agreement (in a form reasonably acceptable to Optionee) from the holder(s) of such rights. In the event that any holder(s) of such rights are unwilling to enter into a reasonable agreement to resolve the identified issue(s), the Optionee may, in its discretion, either accept the issue and execute the Option, thereby, subject to the terms of any definitive agreements (including the Lease), accepting the known issue, or terminate this Option, in which event the Owner will retain the Option Payment and this matter will be concluded.

7. **Right of Entry**

(a) **Investigations.** Beginning on the Effective Date and throughout the Option Period, Owner shall provide to Optionee, its employees, agents, contractors, and current or potential lenders or investors, reasonable access to the Property to conduct the Survey, evaluate, conduct and perform inspections, including soil and water testing, environmental assessments (Phase I and/or Phase II), engineering surveys, topographical, structural and geo-technical tests, and such other tests and inspections (collectively, the “**Investigations**”) that Optionee may deem necessary or advisable in its sole discretion, upon Optionee providing at least twenty-four (24) hours’ prior notice to Owner. Optionee shall keep the Property free from any liens arising out of any work performed, materials furnished, or obligations incurred by or on behalf of Optionee in connection with the Investigations. Optionee shall remove, or cause the removal of, any such lien by bond or otherwise within ten (10) days after Optionee becomes aware of the existence of such lien and if Optionee shall fail to do so, Owner may pay the amount necessary to remove such lien, without being responsible for investigating the validity thereof; provided, however, that the Optionee will be responsible to indemnify Owner in respect of the amounts paid to remove any such liens in accordance with § 7(b), *infra*.

(b) **Optionee Indemnification of Owner.** Optionee shall indemnify, defend and hold Owner harmless from and against all claims, losses, liabilities, damages, losses, costs or expenses (including, without limitation, reasonable attorneys’ fees) (collectively, “**Claims**”) which Owner may incur as a direct result of any act or wrongful omission by Optionee, its agents, or contractors in connection with the use of the Property; provided, however, that Optionee shall have no obligation or duty to indemnify, defend or hold Owner harmless from Claims (including, without limitation, Claims that the Property has declined in value) (i) arising out of, resulting from, or incurred in connection with the results or findings of Optionee’s Investigations, (ii) to the extent such Claims are due to the acts or wrongful omissions of Owner or its employees, agents or contractors during the Option Period, (iii) to the extent such Claims are for any consequential or indirect loss or damage, or (iv) to the extent such Claims exceed amounts recovered by Optionee under the insurances required to be taken out pursuant § 10, *infra*. Notwithstanding the foregoing, Optionee’s indemnification obligations shall not extend to any conditions on, at, or under the Property in existence as of the Effective Date, except and to the extent such conditions are aggravated by the gross negligence or willful misconduct of Optionee or its employees, agents or contractors. Optionee’s obligations hereunder shall survive the termination or expiration of the Option Period for two years.

8. **Owner’s Representations and Warranties.** Owner makes the following representations and warranties, which shall be true as of the Effective Date, the date the Option is exercised by Optionee, and shall survive the expiration or termination of this Agreement:

(a) **Authority.** Pursuant to a vote of the Owner’s Board at a duly noticed public meeting on February 10, 2020, Owner has the full legal right, power and authority, without the consent of any additional party or parties, to enter into this Agreement and to perform its obligations hereunder. The execution and delivery of this Agreement and the consummation of all transactions and performance of all obligations contemplated hereby have been duly authorized and will not conflict with, or result in a breach of any of the terms or provisions of, or constitute a default under, any document or instrument to which Owner is a party.

(b) **Binding on Owner.** Pursuant to a vote of the Owner’s Board at a duly noticed public meeting on February 10, 2020, the person executing this Agreement on behalf of Owner has full power and authority to bind Owner to the obligations set forth herein, and upon execution and delivery of the same, this Agreement will constitute a valid and binding instrument enforceable in accordance with its terms.

(c) **Exclusivity.** Owner represents and warrants it will not enter into any option, lease agreement, or similar transaction relating to the Premises with any other person or entity other than the Optionee during the Option Period (or Option Period as extended, if applicable).

(d) **Claims or Actions.** There are no current, pending or contemplated actions, administrative inquiries or proceedings, suits, arbitrations, claims or proceedings commenced by any person or governmental entity affecting Owner, the Property, or any portion thereof; provided, however, that this representation and warranty is further limited by § 8(g), *infra.*

(e) **No Violation of Laws.** To the best of Owner's knowledge, the Property is not in violation of any applicable federal, state, local or other laws, regulations or codes (the "**Laws**") and Owner has not received notice pertaining to the violation of any Laws affecting the Property or any portion thereof, and Owner has no knowledge of any facts which might be a basis for any such notice; provided, however, that this representation and warranty is further limited by § 8(g), *infra.*

(f) **Bankruptcy.** Owner has not (i) made a general assignment for the benefit of creditors; (ii) filed any voluntary petition in bankruptcy or suffered the filing of any voluntary petition by its creditors; (iii) suffered the appointment of a receiver to take possession of all or substantially all of its assets; or (iv) suffered the attachment or other judicial seizure of all or substantially all of its assets.

(g) **Fee Owner; Liens.** Owner holds the entire fee simple interest in the Property, except for the limitations on ownership detailed in the relevant Deed of Convenience from the Maine Department of Transportation to the Maine Port Authority, which is recorded at Book 36501 and Page 146 in the Cumberland County Registry of Deeds (a copy of which is attached hereto as **Exhibit D**) (the "**Deed**"), and any other encumbrances, covenants, and restrictions of record. Except as previously disclosed by Owner to Optionee in writing or as disclosed in the Title Report or Survey, Owner represents that there are no liens upon Owner's right, title or interest in the Property other than liens for monetary obligations for which Owner shall make best efforts to pursue a SNDA pursuant to § 9(a), *infra.* Except as otherwise listed in the Basic Option Provisions, Owner has not granted or entered into any other options, rights of first refusal, offers to purchase or lease or agreements to sell or lease all or any part of the Property ("**Third Party Interests**") other than with Optionee pursuant hereto.

(h) **Disclaimer of Certain Representations and Warranties.** Notwithstanding any of the foregoing representations and warranties, Owner makes no representations or warranties as to the legal or factual status of: land use and environmental matters; fitness of the Premises or any portion thereof for any particular purpose; water quality or quantity; the condition or quality of the soil; inchoate or unrecorded liens; or the existence, status, or condition of access to, or public utilities serving the Premises. Further reference is made to certain recorded covenants and restrictions, and all conditions and protections affecting the Premises as set forth in the records of the Maine Department of Environmental Protection's ("**DEP**") Voluntary Response Action Program ("**VRAP**") referencing the former Portland Gas Works site, some or all of which are listed in the relevant Deed (**Exhibit D**).

During the Option Period, Owner shall timely notify Optionee in writing of any changes affecting any of the foregoing representations and warranties.

9. **Owner's Covenants.** Owner hereby covenants and agrees that, from and after the Effective Date, though the Option Period and, if the Option is exercised, thereafter during the period up to and including the Closing:

(a) **Owner Mortgages.** Owner shall use commercially reasonable efforts to deliver to Optionee a subordination, non-disturbance and attornment agreement(s), in form and substance reasonably

acceptable to Optionee (each, a “SNDA”) from the current holder(s) of any deed of trust, mortgage or other lien encumbering the Property. Owner shall make all payments required under any loan secured by a mortgage or deed of trust encumbering the Property and pay all real property taxes and assessments levied or imposed against the Property and before any of the same become delinquent. During the Option Period, Owner shall not mortgage or otherwise encumber its interest in the Property without providing Optionee with fifteen (15) days prior written notice thereof and an SNDA reasonably acceptable to Optionee from such holder(s) of any deed of trust, mortgage or other lien encumbering the Property. Notwithstanding anything in this § 9(a), Optionee is aware of the Maine Department of Transportation’s residual interests in the Land as discussed in the Deed (Ex. D), and the Owner shall use commercially reasonable efforts to obtain such assurances or documents from the Department of Transportation as the Optionee may reasonably require.

(b) **Mortgage of Optionee’s Interest.** Optionee shall have the right to obtain financing from one or more Financing Parties (such term to be defined in the Lease) by way of a direct or collateral assignment of this Agreement to a Financing Party, after providing seven days’ written notice to the Owner. Owner agrees that, amongst other Financing Party protections and cure rights, Owner shall (a) acknowledge and consent to, amongst other things, Optionee assigning the Lease and the Easements and any other easements benefitting the Premises by way of direct or collateral assignment to a Financing Party, assignment of the Easements and a lease of the storage facility from such Financing Party to Optionee, grant the Financing Parties a sublease or other real property interest in Optionee’s interest in and to the Premises, grant a first priority security interest in Optionee’s interest in the improvements and/or the Lease and Optionee’s other interests in and to the Premises, including, but not limited to, any Easements, rights of way or other similar interests; and (b) agree to execute such subordination agreements, consents, estoppels and other acknowledgements of the foregoing as Optionee or the Financing Parties may request. Notwithstanding the foregoing, Owner retains discretion to decline to acknowledge, consent, and/or agree to the items listed in this § 9(b), provided that such acknowledgement, consent, and/or agreement shall not be unreasonably withheld. Notwithstanding anything in this § 9(b), Optionee is aware of the Maine Department of Transportation’s residual interests in the Land as discussed in the Deed (Ex. D), and the Owner shall use commercially reasonable efforts to obtain such additional assurances or documents from the Department of Transportation as the Optionee may reasonably require.

(c) **Permits; Cooperation with Development.** Optionee shall have the right to apply for applications for land use entitlements, environmental approvals and permits, site plans, and subdivision or minor land division requests and parcel maps. Owner shall cooperate with Optionee in Optionee’s efforts to obtain such approvals by executing such documents as are reasonably necessary. Nothing in this § 9(c) relieves Optionee’s obligations further discussed in § 7, *supra*; by way of example only and not limitation, these obligations include Optionee’s obligation to pay for its investigations and indemnify Owner for same.

(d) **Use of the Property.** During the term of this Option, Owner will not commit waste on the Property or otherwise materially change the Property, nor will Owner agree to grant or permit any easement, lease, license, right of access or other possessory right in the Premises to any third party without the prior written consent of Optionee. Owner shall comply with all Laws applicable to the Property.

10. **Insurance.** Effective as of the date Optionee enters the Property for the Investigations, and continuing through the Option Period, Optionee shall obtain and maintain liability insurance for its activities on the Property. Such insurance will be in the amount of One Million Dollars (\$1,000,000) per occurrence and a Ten Million Dollar (\$10,000,000) policy limit, and will name Owner as an additional insured but only for liability arising out of Optionee’s operations on the Property including, without limitation, coverage for damage or harm caused or incurred by Optionee and its employees and agents.

11. **Assignment.** Optionee shall have the right to assign its rights and obligations under this Agreement to any Optionee affiliate, third party, and/or party providing financing to Optionee only with the prior written consent of Owner. Owner shall not have any right to assign its rights and obligations under this Agreement without Optionee's prior written consent, not to be unreasonably withheld, conditioned or delayed.

12. **Termination.**

(a) **Default.** Each of the following events shall constitute an event of default by the applicable party and shall permit the non-defaulting party to terminate this Agreement and pursue the remedies at law described below, which, as to Owner, shall consist solely of the remedies at law described in Section 11(b) below, and, as to Optionee, shall consist solely of the remedies at law contained in Section 11(c) below.

(i) The failure of Optionee to pay the amount required to be paid hereunder when due.

(ii) The failure of either party to perform any of the other terms, agreements or conditions set forth in this Agreement, where such failure continues for thirty (30) days (or such longer period required to cure such failure, not to exceed sixty (60) days), after receipt of written notice from the other party; or

(iii) A party files for bankruptcy or has an involuntary petition in bankruptcy or a request for appointment of a receiver filed against it, where such involuntary petition or request is not dismissed within ninety (90) days after filing.

(b) **Owner Remedies – Liquidated Damages.** EXCEPT FOR OPTIONEE'S INDEMNIFICATION OBLIGATIONS CONTAINED IN THIS AGREEMENT, OWNER'S SOLE REMEDY AT LAW UPON AN EVENT OF DEFAULT BY OPTIONEE SHALL BE TO RETAIN THE OPTION PAYMENTS IT HAS THEN RECEIVED AS LIQUIDATED DAMAGES FOR SUCH DEFAULT OF OPTIONEE, AND IN SUCH EVENT, OPTIONEE SHALL HAVE NO FURTHER RIGHT WHATSOEVER TO LEASE THE PREMISES AND OWNER SHALL HAVE NO RIGHT TO SEEK ANY FURTHER DAMAGES OR REMEDY AT LAW. THE PARTIES AGREE THAT IT WOULD BE IMPRACTICAL AND/OR EXTREMELY DIFFICULT TO ASCERTAIN THE ACTUAL DAMAGES THAT WOULD BE SUFFERED BY OWNER AS A RESULT OF ANY SUCH DEFAULT BY OPTIONEE, AND THAT UNDER THE CIRCUMSTANCES EXISTING AS OF THE DATE OF THIS AGREEMENT, THE LIQUIDATED DAMAGES PROVIDED FOR IN THIS SECTION REPRESENT A REASONABLE ESTIMATE OF THE DAMAGES WHICH OWNER WILL INCUR AS A RESULT OF ANY SUCH DEFAULT BY OPTIONEE. SUCH RETENTION OF THE OPTION PAYMENTS BY OWNER IS INTENDED TO CONSTITUTE LIQUIDATED DAMAGES TO OWNER AND SHALL NOT BE DEEMED TO CONSTITUTE A FORFEITURE OR PENALTY.

(c) **Optionee Remedies – Liquidated Damages.** OPTIONEE'S SOLE REMEDY AT LAW UPON AN EVENT OF DEFAULT BY OWNER SHALL BE TO RECOVER AN AMOUNT EQUAL TO THE OPTION PAYMENT(S) IT HAS THEN PAID AS LIQUIDATED DAMAGES AS RECOMPENSE FOR SUCH DEFAULT OF OWNER. THE PARTIES AGREE THAT IT WOULD BE IMPRACTICAL AND/OR EXTREMELY DIFFICULT TO ASCERTAIN THE ACTUAL DAMAGES THAT WOULD BE SUFFERED BY OPTIONEE AS A RESULT OF ANY SUCH DEFAULT BY OWNER, AND THAT UNDER THE CIRCUMSTANCES EXISTING AS OF THE DATE OF THIS AGREEMENT, THE LIQUIDATED DAMAGES PROVIDED FOR IN THIS SECTION REPRESENT A REASONABLE ESTIMATE OF THE DAMAGES WHICH OWNER WILL INCUR AS A RESULT OF ANY SUCH DEFAULT BY OWNER. SUCH RECOVERY OF AN AMOUNT EQUAL TO THE OPTION

PAYMENTS TO OWNER IS INTENDED TO CONSTITUTE LIQUIDATED DAMAGES FOR OPTIONEE AND SHALL NOT BE DEEMED TO CONSTITUTE A FORFEITURE OR PENALTY.

(d) **Equitable and Statutory Remedies.** Notwithstanding any of the foregoing, both parties retain all rights to pursue equitable remedies (e.g. injunctive relief) and non-monetary statutory relief (e.g. forcible entry and detainer) as may be cognizable against the other. In no event will money damages, costs of suit, attorney's fees, interest, or any other amounts of money of any description be awarded to either party against the other to exceed the amount of liquidated damages described in § 12(b)-(c), *supra*. In the event the Parties are unable to negotiate to a mutually agreeable Lease, the maximum equitable remedy available will be an order to continue negotiating in good faith for a reasonable amount of time; in no event can either party be ordered to enter into a Lease as specific performance of this Option.

(e) **Termination by Optionee Absent Default by Owner.** If Optionee determines, in its sole and absolute discretion, that the Land is unsuitable or undesirable for leasing by Optionee, Optionee shall have the right to terminate this Agreement by giving written notice thereof to Owner and this Agreement shall terminate on the date specified in Optionee's written notice. If the Agreement is terminated during the Option Period pursuant to the preceding sentence, then neither party shall have any further rights or obligations hereunder; provided, however, that Owner shall retain all Option Payments it shall have received hereunder prior to the date of termination of the Option Agreement and any provisions hereof that expressly survive termination of this Agreement shall remain in effect.

13. **Miscellaneous.**

(a) **Investigatory Results.** For any Investigation undertaken by Optionee that involved entry onto the Premises by Optionee or any of its employees, contractors, or agents of any kind, Optionee will provide a copy of such investigatory reports, findings, or results of any kind to Owner within fourteen (14) days of such investigatory reports, findings, or results, at no charge to Owner. These materials may be provided electronically. By way of example only and not limitation, expressly included in this duty to turn over reports and findings are any soil sample findings and land survey results.

(b) **Waiver of Jury Trial and Selection of Venue.** EACH PARTY HERETO WAIVES, TO THE FULL EXTENT PERMITTED BY LAW, THE RIGHT TO A JURY TRIAL IN ANY LITIGATION CONCERNING THIS AGREEMENT OR ANY DEFENSE, CLAIM, COUNTERCLAIM, CLAIM OF SET-OFF OR SIMILAR CLAIM OF ANY NATURE. THE PARTIES AGREE THAT ANY DISPUTES OVER THIS AGREEMENT WILL BE LITIGATED EXCLUSIVELY IN THE MAINE STATE COURTS, AND WAIVE THE RIGHT TO PURSUE ANY DEFENSE, CLAIM, COUNTERCLAIM, CLAIM OF SET-OFF OR SIMILAR CLAIM OF ANY NATURE IN ANY OTHER FORUM. EACH PARTY CONSENTS IN ADVANCE TO PERSONAL JURISDICTION IN THE MAINE STATE COURTS.

(c) **Counterparts.** This Agreement may be executed in counterparts. All executed counterparts shall constitute one agreement, and each counterpart shall be deemed an original. The parties hereby agree signatures transmitted by facsimile or email shall be legal and binding and shall have the same full force and effect as if an original of this Agreement had been delivered and hereby waive any defenses to the enforcement of the terms of this Agreement based on the foregoing forms of signature.

(d) **Time Periods.** If any date for exercise of any right, giving of any notice, or performance of any provision of this Agreement falls on a Saturday, Sunday or holiday, the time for performance will be extended to the next business day.

(e) **No Waiver.** The failure of either party to require strict performance by the other party of any provision of this Agreement will not be considered a waiver of any other provision, nor prevent any party from enforcing that or any other performance at any time thereafter.

(f) **Further Assurances.** The parties shall at their own cost and expense execute and deliver such further documents and instruments and shall take such other actions as may be reasonably required or appropriate to carry out the intent and purposes of this Agreement.

(g) **Governing Law.** This Agreement is made pursuant to, and shall be construed and enforced in accordance with, the laws of the State of Maine.

(h) **Amendments; Entire Agreement.** This Agreement contains the entire agreement between the parties and is intended by the parties to set forth their entire agreement with respect to the subject matter hereof, and any agreement hereafter made shall be ineffective to change, modify or discharge this Agreement, in whole or in part, unless such agreement is in writing and signed by the party against whom enforcement of the change, modification or discharge is sought. Owner and Optionee agree that all prior or contemporaneous oral or written agreements between or amongst themselves or their agents are merged in or revoked by this Agreement.

(i) **Partial Invalidity.** If any term or provision of this Agreement is, to any extent, determined by a court of competent jurisdiction to be invalid or unenforceable, the remainder of this Agreement shall not be affected thereby, and each remaining term and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

(j) **Successors and Assigns.** This Agreement, and the rights and obligations of the parties hereto, shall be binding upon and inure to the benefit of the parties and their respective successors, heirs, executors, administrators and permitted assigns.

(k) **Interpretation.** Each party acknowledges that it has been represented by or had the opportunity to be represented by legal counsel in its review of this Agreement and that any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement or any amendments or exhibits hereto.

(l) **Survival of Terms.** All covenants, representations and warranties contained in this Agreement shall survive Closing. Those provisions in this Agreement which by their terms are intended to be or must be performed in whole or in part after the Closing or after termination of this Agreement shall survive Closing and the termination of this Agreement.

(m) **Headings.** The headings herein are inserted only for convenience and shall have no effect in interpreting the meaning of any provision.

(n) **Time is of the Essence.** Time is of the essence in this Agreement and each and every provision of this Agreement.

(o) **Notices.** All notices, approvals, disapprovals or elections required or permitted to be given under this Agreement shall be in writing and shall be (i) delivered personally; (ii) mailed by certified or registered mail, return receipt requested; (iii) sent by email transmission; (iv) sent by facsimile transmission; or (v) sent by Federal Express or other professional carrier, to the parties at the addresses listed below or at such other addresses as shall be designated by Optionee or Owner in writing. Except as expressly set forth in this Agreement, notices shall be deemed given upon delivery or tender of delivery to the intended recipient; provided, however, that (x) notice sent by email or facsimile shall only be deemed received when

both (A) the sender has electronic confirmation that it was sent to all parties (and has retained a confirmation of the delivery) and (B) at least one addressee entitled to notice for the applicable party has acknowledged receipt of the transmission; and (y) if a post office box is provided as the notice address, notice shall be deemed to have been given or made five (5) days after being deposited in the United States mail with appropriate postage prepaid. Copies of notices are for informational purposes only, and a failure to give or receive copies of any notice shall not be deemed a failure to give notice.

Owner Address

Maine Port Authority
Attn: Jon Nass, CEO
460 Commercial Street
Portland, ME 04101

Phone: 207-200-2400
E-mail: jon.nass@maineports.com

With a copy to:

Office of the Attorney General
Attn: Timothy Steigelman, AAG
6 State House Station
Augusta, ME 04333

Phone: 207-626-8509
E-mail: timothy.steigelman@maine.gov

Optionee Address

Attn: Thomas O'Shaughnessy
230 Park Avenue,
19th Floor
New York
10169
Phone: (347) 263-3213

With a copy to:

Attn: General Counsel
Amber Infrastructure Limited
3 More London Riverside
London, United Kingdom
SE1 2AQ

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, and intending to be bound hereby, the parties hereto have executed this Agreement on the date written above.

“Owner”

Maine Port Authority
a State of Maine “body both corporate and politic.” 23 M.R.S. § 4420.

By:


Name: Jon Nass

Title: Chief Executive Officer

“Optionee”

Maine International Cold Storage Facility LLC,
a Delaware limited liability company

By:


Name: Tom O'Shaughnessy

Title: President

Exhibit A

**Depiction of the Land
(entitled "Existing Conditions," "IMT WEST COLD STORAGE FACILITY," July 2015)**

Exhibit B

Letter of Intent from Amber Infrastructure Group (January 27, 2020)

Exhibit C

**Design-Build Agreement between Maine Port Authority Woodard & Curran Constructors, LLC
(Feb. 13, 2019, and as amended May 28, 2019)(without exhibits)**

Exhibit D

**Deed of Convenience
Book 36501, Page 146 (March 11, 2020)**

Maine International Cold Storage Facility LLC (“**Optionee**”)
1330 Avenue of the Americas
Floor 28
New York, NY
10019

Maine Port Authority
Attn: Jon Nass, CEO
460 Commercial Street
Portland, ME
04101

Office of the Attorney General
Attn: Timothy Steigelman, AAG
6 State House Station
Augusta, ME
04333

June 5, 2020

Dear Jon,

**OPTION TO GROUND LEASE DATED MARCH 12, 2020 BETWEEN THE MAINE PORT AUTHORITY AND
OPTIONEE (THE “OPTION”) – EXTENSION NOTICE**

Pursuant to this letter, Optionee hereby exercises its right under Section 2(a) of the Option to extend the Option Period (as such term is defined in the Option) for one (1) additional three (3) month period (until September 12, 2020).

Your sincerely,

A handwritten signature in cursive script that reads "Tom O'Shaughnessy".

Thomas O'Shaughnessy
For an on behalf of Optionee



5. EASEMENTS AND OTHER BURDENS

There are several easements currently located on the property. They are as follows:

- 20-foot wide easement to CMP
- 30-foot wide easement to CMP (10892/32 & 10600/111)
- 30-foot wide sewer easement to the City of Portland (31021/187 & 31378/333)
- 25-foot wide easement to N.E.T&T (2361/361)

These easements are on the eastern portion of the property and none of them will be impacted by the proposed project.

There are no new proposed easements with the development of the Cold Storage Facility. The Boundary Survey attached to Section 12 shows and describes easements located within the parcel. Proposed work will not change or restrict access to facilities, utilities, amenities, or resource, public or private.

Standard to be Waived: Cite Ordinance or Technical Manual Standard	Cite Standard Language: Cite specific language of applicable Ordinance or Technical Manual Standard	Waiver Being Sought: Describe waiver being sought. Ex. – We are requesting a two-way parking lot drive aisle width of 20' feet.	Justification for Waiver: Address specific waiver criteria, if applicable, and document reasons for the waiver request.
City of Portland Land Use Code Section 14-526(a)5.a.(ii)	The following types of development shall design and implement a Transportation Demand Management (TDM) plan: (ii) All commercial or institutional uses of 50,000 sf or more total floor area.	We are requesting a waiver from the TDM Plan requirement.	There will be 25 employees working at the proposed facility. TDM Plans are typically required for commercial uses designed to employ 100+ employees.
City of Portland Land Use Code Section 14-526(a)2.c.(i)	All proposed developments shall provide sidewalks along all frontages in accordance with Sections 14-498 and 14-499 of the City Code. An applicant may request a waiver from curb and sidewalk installation requirements if they meet applicable waiver criteria	We are requesting a waiver from the sidewalk requirement. The site meets the waiver criteria listed in Section 506(b) (Items 2. and 3.).	The frontage of the proposed project is comprised of an existing driveway opening. No sidewalk exists on either side of the driveway opening on the southern side of West Commercial Street. An existing internal sidewalk in a landscaped island at the site
City of Portland Technical Manual Section 1.7.2.4	Maximum widths shall not exceed the following, although confirmation of exact capacity requirements will be necessary: • Commercial - 24 feet • Industrial – 30 feet	We are requesting a waiver from the maximum driveway width requirement.	The proposed facility and previously approved adjacent IMT facility require turns into and out of the site by large vehicles. Please refer to attached turning movement figures and previously approved IMT turning



6. EVIDENCE OF STATE AND/OR FEDERAL APPROVALS

In addition to the City's Level III Site Plan Review, the proposed project requires the following permits:

- MaineDEP Site Location of Development (reviewed by City of Portland under Delegated Review Authority);
- MaineDEP Natural Resources Protection Act Permit-by-Rule;
- ACOE Category II Permit;
- City of Portland Flood Hazard Development Permit;
- Maine Construction General Permit Notice of Intent; and
- FAA Notice of Proposed Construction.

Permit approvals will be submitted to the City upon receipt.



STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041



March 17, 2020

Darrin Stairs
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

RE: Information Request – 40 West Commercial Street Cold Storage Facility Project, Portland

Dear Darrin:

Per your request received on March 04, 2020, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *40 West Commercial Street Cold Storage Facility* in Portland.

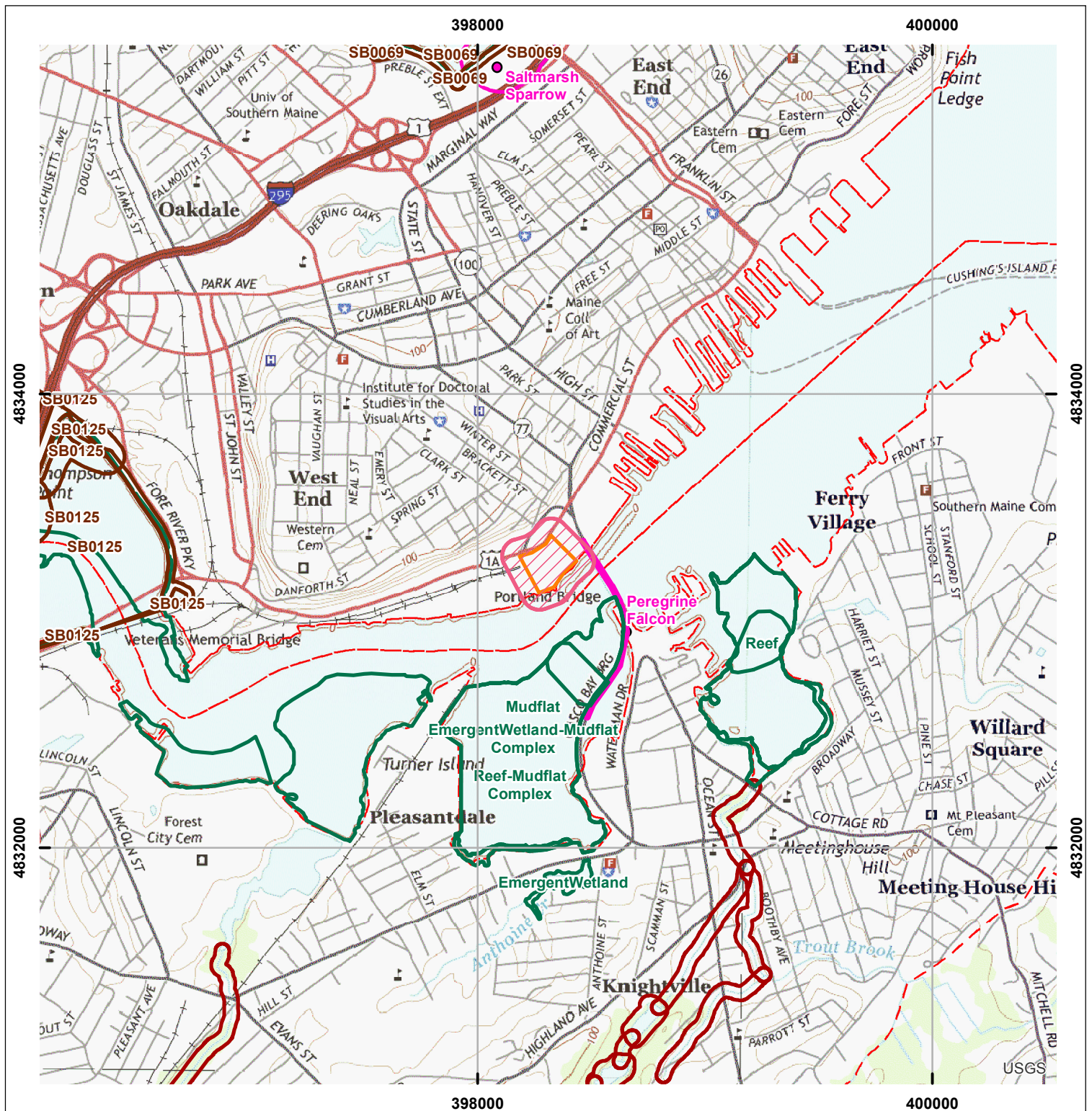
Our information indicates no locations of Endangered, Threatened, or Special Concern species within the project area that would be affected by your project. Additionally, our Department has not mapped any Essential or Significant Wildlife Habitats or inland fisheries habitats that would be directly affected by your project.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Becca Settele
Wildlife Biologist

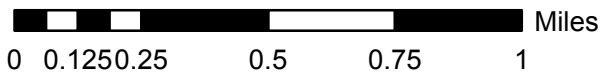


Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: 40 West Commercial Street cold storage facility, Portland (Version 1)



Maine Department of
Inland Fisheries and Wildlife



Projection: UTM, NAD83, Zone 19N

Date: 3/5/2020

- | | | |
|-----------------------------|----------------------------------|---|
| ProjectPoints | Deer Winter Area | Roseate Tern |
| ProjectLines | LUPC p-fw | Piping Plover and Least Tern |
| ProjectPolys | Cooperative DWAs | Aquatic ETSc - 2.5 mi review |
| ProjectSearchAreas | Seabird Nesting Islands | Rare Mussels - 5 mi review |
| Maine Cliff and Talus Areas | Shorebird Areas | Maine Heritage Fish Waters |
| | Inland Waterfowl and Wading Bird | Arctic Charr Habitat |
| | 2008 lwwh - Shoreland Zoning | Redfin Pickerel and Swamp Darter Habitats - buffer100ft |
| | Tidal Waterfowl and Wading Bird | Special Concern occupied habitats - 100ft buffer |
| | Significant Vernal Pools | Wild Lake Trout Habitats |
| | Environmental Review Polygons | |



Portland, Maine



Yes. Life's good here.

Planning & Urban Development Department

ZONING ANALYSIS Relevant Zone(s) WPDZ & Shoreland Overlay

All Projects:

	Required	Proposed
Lot Size	Min 5 Acres	17.9 acres
Area Per Dwelling Unit	N/A	N/A
Minimum Street Frontage	None	>1600'
Front Yard Minimum	N/A	151'
Front Yard Maximum	N/A	170'
Rear Yard	N/A	210'
Yard Right	N/A	44'
Yard Left	N/A	>500'
Side Street Setback	N/A	N/A
Step Back	N/A	N/A
Maximum Lot Coverage	50%	14%
Minimum Lot Coverage	N/A	N/A
Maximum Height	75'	73.83'
Open Space	N/A	N/A
Maximum Impervious Area	N/A	N/A
Pavement Setback	N/A	N/A
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces	TBD**	30
Loading Bays	N/A	12
Other 1 Maximum Bldg. Length, over 60' height	300'	300'
Other 2		
Other 3		

****Note:** Per Section 14-332.2(c) of the City's Ordinance, the Planning Board shall establish the parking requirements based upon parking analysis submitted by the Applicant.

Planned Residential Unit Developments (PRUD) Requirements**N/A**

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)**N/A**

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			



7. EVIDENCE OF FINANCIAL & TECHNICAL CAPACITY

7.1 FINANCIAL CAPACITY

Attached to this Section is a letter from President of Amber Infrastructure LLC, which includes annual audited account information, demonstrating that Maine International Cold Storage Facility LLC has financial capacity to support the proposed project.

7.2 TECHNICAL CAPACITY

On behalf of the Applicant, Woodard & Curran is preparing this application for the proposed development. Woodard & Curran has extensive experience with design for site development projects and specifically on the peninsula within the City of Portland. Woodard & Curran, a 1,000-person Portland-based firm, has provided engineering services to the public and private sector for over 40 years, including permitting, civil/site engineering, stormwater and construction management services.

Woodard & Curran has been involved in numerous development projects in the Greater Portland Area and has developed working relationships with various consultants who are called upon, as necessary, to provide specialized services. The project is also supported by a design team including CWS Architects, Pat Carroll Landscape Architects, Thornton Tomasetti Structural Engineers and Bartlett Electrical Engineering. Copies of resumes or project examples can be provided upon request.

7.3 ATTACHMENTS

- Financial Capacity Letter

Ms Christine Grimando
AICP Planning Director
Planning & Urban Development
Department 389 Congress Street 4th Floor
Portland
ME 04101

February 28, 2020

Re: the Maine International Cold Storage Facility ("MICSF")

Dear Ms. Grimando,

It is my pleasure to provide this letter confirming Amber Infrastructure Group's ("Amber") relationship with Maine International Cold Storage Facility LLC.

MICSF LLC is a wholly owned subsidiary of Amber and has been created as a Special Purpose Entity to undertake the development, financing, construction, ownership and operation of the proposed MICSF to be constructed in partnership with the Port Authority at the Portland Marine Terminal.

Amber is an international infrastructure developer and fund manager with over \$8bn under management. Amber invests in eight countries internationally across six funds. Amber's core business focuses on sourcing, developing and investing in infrastructure sectors that support the lives of people, homes and businesses internationally. Amber is headquartered in London with offices in Europe, North America and Australia and employs approximately 125 infrastructure professionals.

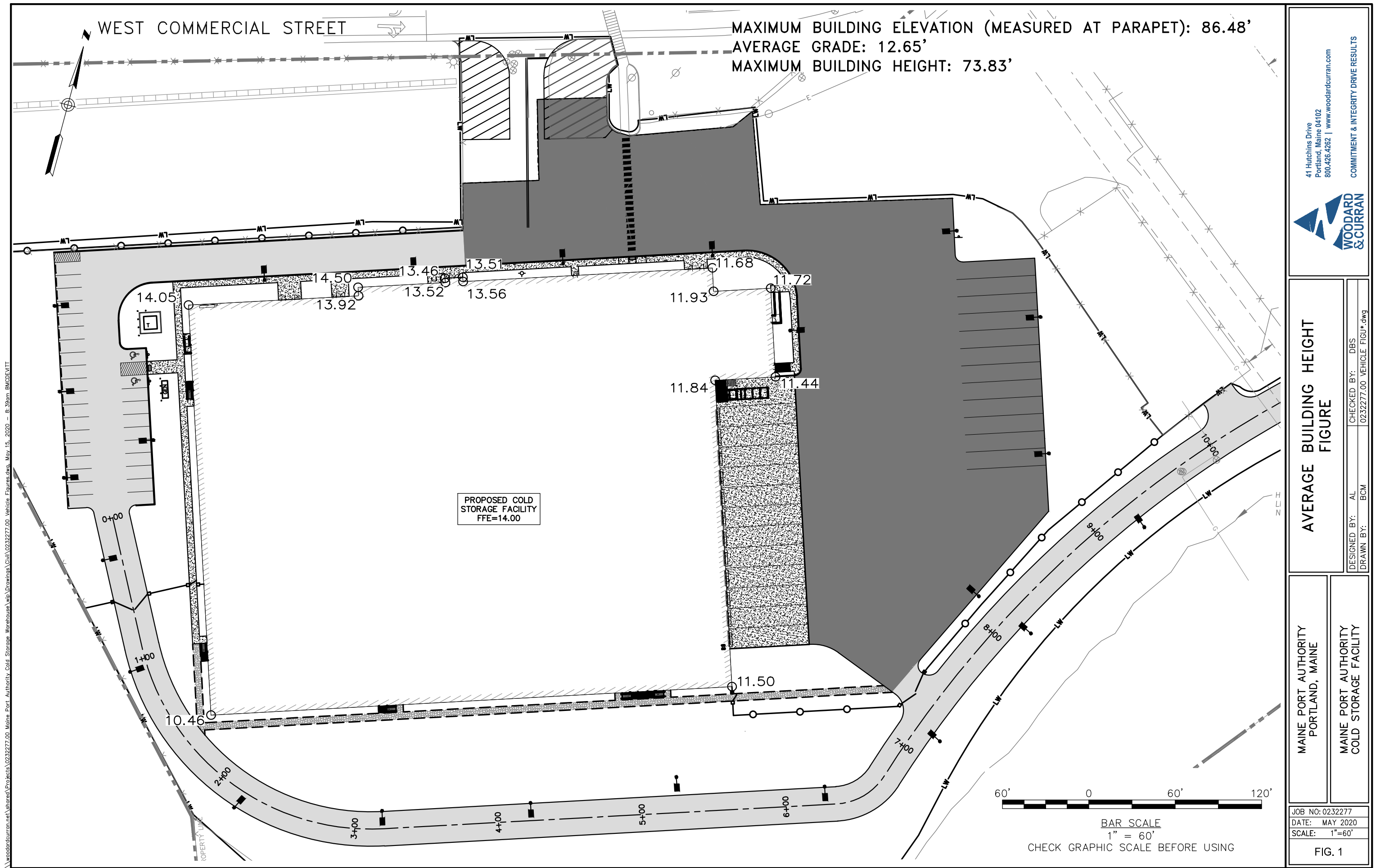
I have attached Amber's latest set of annual audited accounts for your review. These demonstrate our available cash resources which exceed £107m (\$139m) which exceed the anticipated financing requirement of the development and financing of the MICSF.

Should you require any further information please do not hesitate to contact me.

Yours sincerely



Tom O'Shaughnessy, President, Amber Infrastructure LLC



\\woodardcurran.net\shared\Projects\0232277.00 Maine Port Authority Cold Storage Warehouse\wip\Drawings\Civil\0232277.00 Vehicle Figures.dwg, May 15, 2020 -- 8:39am BMD\EVTT

8. CONSISTENCY WITH PORTLAND DESIGN STANDARDS & DESIGN MANUAL

Section 14-526 of the City of Portland's Land Use Code outlines the site plan standards that must be met by Level III Site Plan projects. The proposed development will follow the City's design standards as described in the following section.

8.1 TRANSPORTATION

1. *Impact on Surrounding Street Systems*

The attached preliminary Trip Generation Analysis was prepared by Sewall for the proposed development. Based upon the results of the analysis, a TMP should not be required since peak hour trip generation will not exceed the 100-trip threshold.

2. *Access and Circulation*

The Cold Storage Facility has been designed to separate passenger car traffic from truck traffic. Trucks entering from West Commercial Street will turn east to the loading dock side of the building, which is closer to the rest of the IMT facility. Employee passenger cars will enter from West Commercial Street and turn to the west, to a passenger car parking area located on the west side of the building. Pedestrian walkways will connect the passenger car parking area with the administration portions of the building. A striped crosswalk will provide pedestrian access to West Commercial Street. Pedestrians can then cross at the signalized intersection of West Commercial and Beach Streets to a sidewalk on the north side of West Commercial Street. A turning movement figure is attached to this Section.

3. *Loading & Servicing*

The proposed development will safely accommodate delivery and service vehicles. A clear route and travel way is provided on the northern and eastern sides of the building from West Commercial Street to the truck loading area. Twelve spaces are provided for trucks at the loading dock and an additional twelve spaces are provided across the 91-foot wide driveway aisle. Truck berths will be 15 feet wide and 55 feet long. The site design permits safe turning and backing.

4. *Sidewalks*

The project frontage is comprised entirely of the entrance driveway. There are no existing sidewalks on either side of the driveway entrance on West Commercial Street; therefore, no crosswalk is proposed across the driveway entrance. A crosswalk will be provided from the proposed building to the existing crossing at West Commercial Street, as described in Section 8.1.2 above.

5. *Public Transit Access*

No changes to public transit access are proposed as part of this project.

6. *Parking*

In accordance with Section 14-322.2(c), where construction is proposed of new structures having a total floor area in excess of fifty thousand (50,000) square feet, the planning board shall establish the parking requirement for such structures. The proposed cold storage facility is estimated to have 25 employees. The Institute of Transportation Engineers (ITE) provides peak period parking demand on an employee basis by land use (*Parking Generation*, 4th Edition). Based on ITE parking data, the average peak demand for warehousing is 0.78 spaces per employee and the 85th percentile rate is 1.01 space per employee. Therefore, 25 parking spaces should be provided for the 25 projected employees. An employee parking lot with 29 standard parking spaces and 2 accessible parking spaces (31 total spaces) will be provided on the west side of the facility. Six bicycle parking spaces will be provided for the site.

7. *Snow Storage*
Snow storage locations are located within lawn areas adjacent to the proposed parking area as shown on the design drawings attached to Section 2 of this Report.
8. *Transportation Demand Management (TDM)*
The proposed building exceeds 50,000 SF of total floor area; therefore, TDM requirements apply to this development per Section 14-526(a)5.a.(ii). However, as previously mentioned, only 25 employees are anticipated to work at the facility. A waiver from this standard is requested.

8.2 ENVIRONMENTAL & LANDSCAPE FEATURES

1. *Preservation of Significant Natural Features*
The IMT property was previously developed and there are no known areas of significant natural features including unusual natural areas, threatened or endangered botanical features, areas of significant wildlife habitats, aquifers, waterbodies, or wetland areas within the work area for the project. The attached Official Species List identifies the northern long-eared bat, which has been listed as a Federally Threatened Species, in association with the project area (a common designation across the state); however, there are no critical habitat areas located within the project area. Based on US Fish & Wildlife information, the northern long-eared bat typically lives in caves during the winter months, and in trees larger than three inches in diameter during the summer, with migration between these two habitats in the spring in the fall. The project is located in an existing urban, developed area and no trees meeting the criteria for bat habitat are proposed to be impacted by the project. Other publicly available data indicates that the project is not located in any significant plant or animal habitat, on any identified conservation land, or in wetlands as shown in the figures attached to this Section.
2. *Landscaping & Landscape Preservation*
The existing site was previously developed and a few small trees exist on the site. Site disturbance will be limited to the greatest extent to construct the project. Landscaping Plans are included in the Design Drawings attached to Section 2 of this application.
3. *Site Landscaping & Street Trees*
The frontage of the project site is comprised entirely of the access driveway, which prevents the planting of required street trees in the City right-of-way. The applicant intends to contribute to the City's Tree Fund. Landscaping Plans are included in the drawings referenced in Section 2 of this Report.

8.3 ENVIRONMENTAL & STORMWATER

1. *Water Quality, Stormwater Management & Erosion Control*
The project must comply with the water quality, stormwater management, and erosion control standards identified by the City of Portland in the Land Use Chapter of the Code of Ordinances, as well as the MaineDEP Chapter 500 Stormwater Standards associated with Site Location of Development Act Permit requirements. The existing site manages Stormwater through a series of catch basins that discharge to the Fore River. The proposed site upgrades will connect to the existing collection system. The Stormwater Management Plan included with this application demonstrates that the proposed development meets the applicable standards.

The project has been designed to minimize the impact of stormwater leaving the site. The project will not result in the flooding of adjacent lots or City property. Additionally, the project is not located within the

watershed of an Urban Impaired Stream and is not anticipated to pose a risk of groundwater contamination during or after construction. Erosion and sediment control measures are described in the attached Stormwater Management Plan and detailed on the drawings. The development has also been designed to provide for the adequate and sanitary disposal of sewage, as further described in Section 13 of this Report.

8.4 PUBLIC INFRASTRUCTURE & SAFETY

1. *Consistency with City Master Plan*

The development's consistency with City Master Plan is described in Section 10 of this Report.

2. *Public Safety and Fire Prevention*

Provisions for public safety have been incorporated into the design of site visibility, access, and territorial reinforcement. Adequate emergency vehicle access is provided via the proposed access driveway. Compliance with the Portland Fire Department Site Review Checklist is described in Section 14 of this Report. The full plan set will be provided to the Fire Department Reviewer, along with a cover letter including the items in the Portland Fire Department Site Review Checklist, as described in Section 14 of this Report.

3. *Availability and Adequate Capacity of Public Utilities*

The availability and adequate capacity of public utilities is described in Section 13 of this Report.

8.5 SITE DESIGN

1. *Massing, ventilation, and wind impact*

The proposed building will not result in any reduction in ventilation to abutting structures or unsafe wind conditions on the site.

2. *Shadows*

No adverse impacts from shadows are anticipated to result from the proposed project.

3. *Snow and ice loading*

The proposed building has been designed to accommodate appropriate snow and ice loads and to prevent significant amounts of accumulated snow and ice from falling onto adjacent properties or public ways.

4. *View corridors*

The proposed development will not obstruct public view corridors identified in the City's Downtown Vision View Corridor Protection Plan.

5. *Historic Resources*

The project is not located within a Historic District and does not directly impact any historic landmarks.

6. *Exterior Lighting*

A Site Lighting Report by Bartlett Design dated March 2, 2020, and accompanying cut sheets for proposed lighting fixtures, Photometric Plans, and Site Lighting Plan are attached to this Section.

7. *Noise and Vibration*

Construction activities will be limited to hours permitted by the City. HVAC and primary mechanical equipment will be located and screened to mitigate noise impacts. Final HVAC equipment is in the process of being selected. HVAC and primary mechanical equipment will be located on the project in such a way as to direct exhaust away from adjacent properties and will meet federal emissions standards.

An acoustic study was performed for the proposed refrigeration facility. The study is summarized in the Noise Modeling Analysis Report by Tech Environmental dated February 25, 2020 attached to this Section. The acoustic modeling included thirty-two residential receptors and three property line receptors. Two modeling scenarios were performed: daytime, which consisted of twenty refrigerated trucks and one condenser, and nighttime, which consisted of ten refrigerated trucks and one condenser. The results of the acoustic study were compared to the City of Portland Code of Ordinance. The pre-existing sound levels are in the 50-60 dBA range for daytime and nighttime sound levels. The results indicate noise associated with facility operations will not exceed regulated levels and will not negatively impact surrounding development in its urban setting. Table 3 of the letter report presents the results from the model and demonstrate that the project will comply with City regulations.

8. *Signage and Wayfinding*

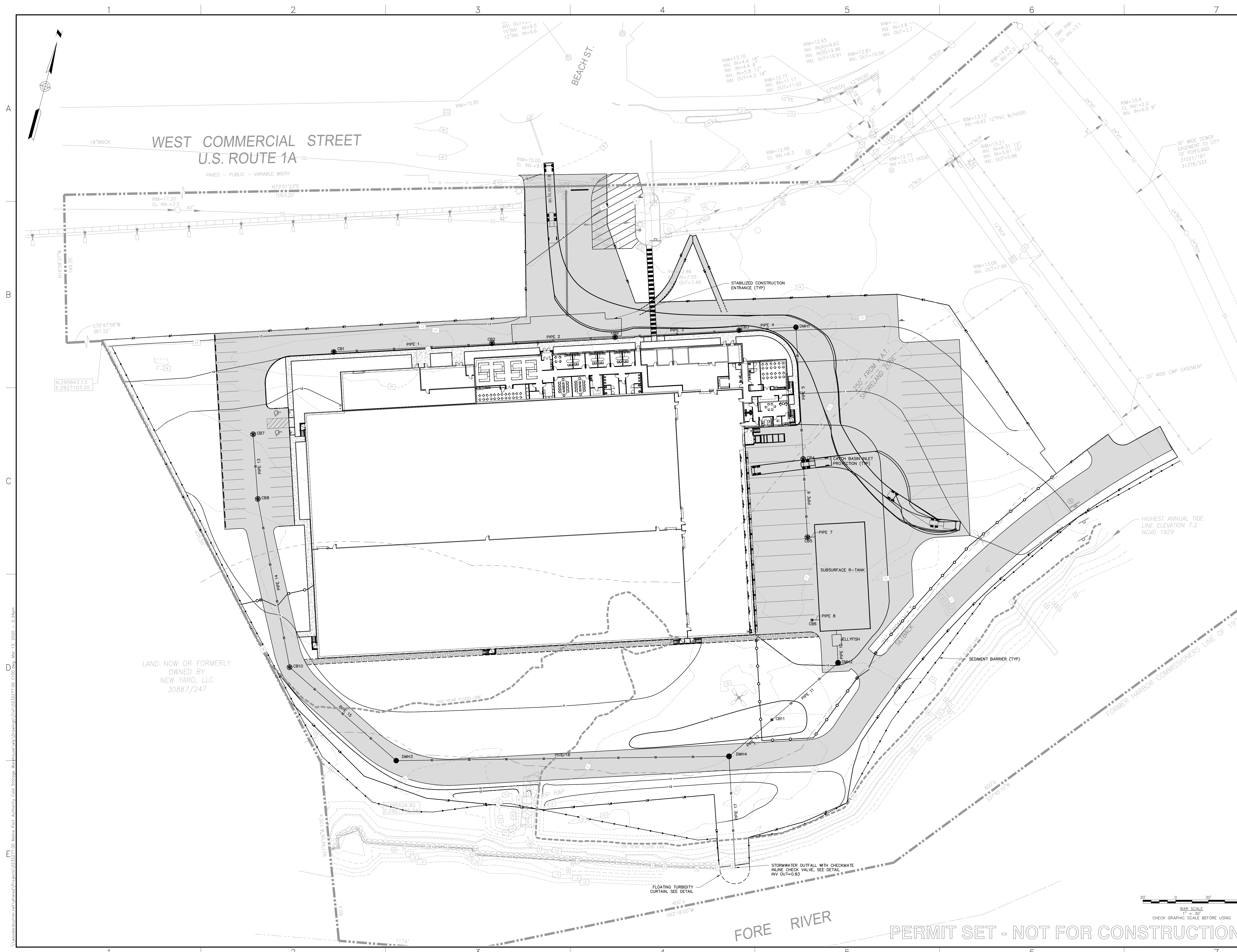
No building signage is proposed at this time. Sign permit applications will be submitted under separate cover. The size, scale, proportions, design, materials, placement, quantity and source and intensity of illumination shall be designed to complement and enhance the architectural attributes of the proposed building.

9. *Zoning Related Design Standards*

An assessment of the City Zoning requirements is provided in Section 9 of this Report.

8.6 ATTACHMENTS

- Traffic Assessment prepared by Sewall (uploaded separately in Eplan)
- Turning Movement Figure
- Stormwater Management Plan (uploaded separately in Eplan)
- Official Species List
- Plant and Animal Habitat Map
- Conservation Land Map
- National Wetlands Inventory Map
- Noise Modeling Analysis prepared by Tech Environmental
- Site Lighting Report, Cut Sheets, Photometric Plans and Site Lighting Plan prepared by Bartlett Design





United States Department of the Interior

FISH AND WILDLIFE SERVICE

Maine Ecological Services Field Office

P. O. Box A

East Orland, ME 04431

Phone: (207) 469-7300 Fax: (207) 902-1588

<http://www.fws.gov/mainefieldoffice/index.html>



In Reply Refer To:

February 24, 2020

Consultation Code: 05E1ME00-2020-SLI-0741

Event Code: 05E1ME00-2020-E-02460

Project Name: MPA Cold Storage Facility

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies the threatened, endangered, candidate, and proposed species and designated or proposed critical habitat that may occur within the boundary of your proposed project or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC Web site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the Endangered Species Consultation Handbook at: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

This species list also identifies candidate species under review for listing and those species that the Service considers species of concern. Candidate species have no protection under the Act but are included for consideration because they could be listed prior to completion of your project. Species of concern are those taxa whose conservation status is of concern to the Service (i.e., species previously known as Category 2 candidates), but for which further information is needed.

If a proposed project may affect only candidate species or species of concern, you are not required to prepare a Biological Assessment or biological evaluation or to consult with the Service. However, the Service recommends minimizing effects to these species to prevent future conflicts. Therefore, if early evaluation indicates that a project will affect a candidate species or species of concern, you may wish to request technical assistance from this office to identify appropriate minimization measures.

Please be aware that bald and golden eagles are not protected under the Endangered Species Act but are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may require development of an eagle conservation plan: http://www.fws.gov/windenergy/eagle_guidance.html Information on the location of bald eagle nests in Maine can be found on the Maine Field Office Web site: <http://www.fws.gov/mainefieldoffice/Project%20review4.html>

Additionally, wind energy projects should follow the wind energy guidelines: <http://www.fws.gov/windenergy/> for minimizing impacts to migratory birds and bats. Projects may require development of an avian and bat protection plan.

Migratory birds are also a Service trust resource. Under the Migratory Bird Treaty Act, construction activities in grassland, wetland, stream, woodland, and other habitats that would result in the take of migratory birds, eggs, young, or active nests should be avoided. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g.,

cellular, digital television, radio, and emergency broadcast) can be found at:
<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm> and at:
<http://www.towerkill.com>; and at:
<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office

P. O. Box A

East Orland, ME 04431

(207) 469-7300

Project Summary

Consultation Code: 05E1ME00-2020-SLI-0741

Event Code: 05E1ME00-2020-E-02460

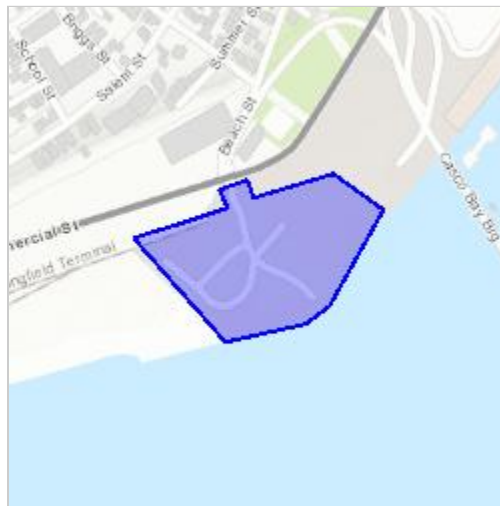
Project Name: MPA Cold Storage Facility

Project Type: DEVELOPMENT

Project Description: Proposed development located at 40 West Commercial Street in Portland, ME.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/43.64488761927891N70.2617886507607W>



Counties: Cumberland, ME

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

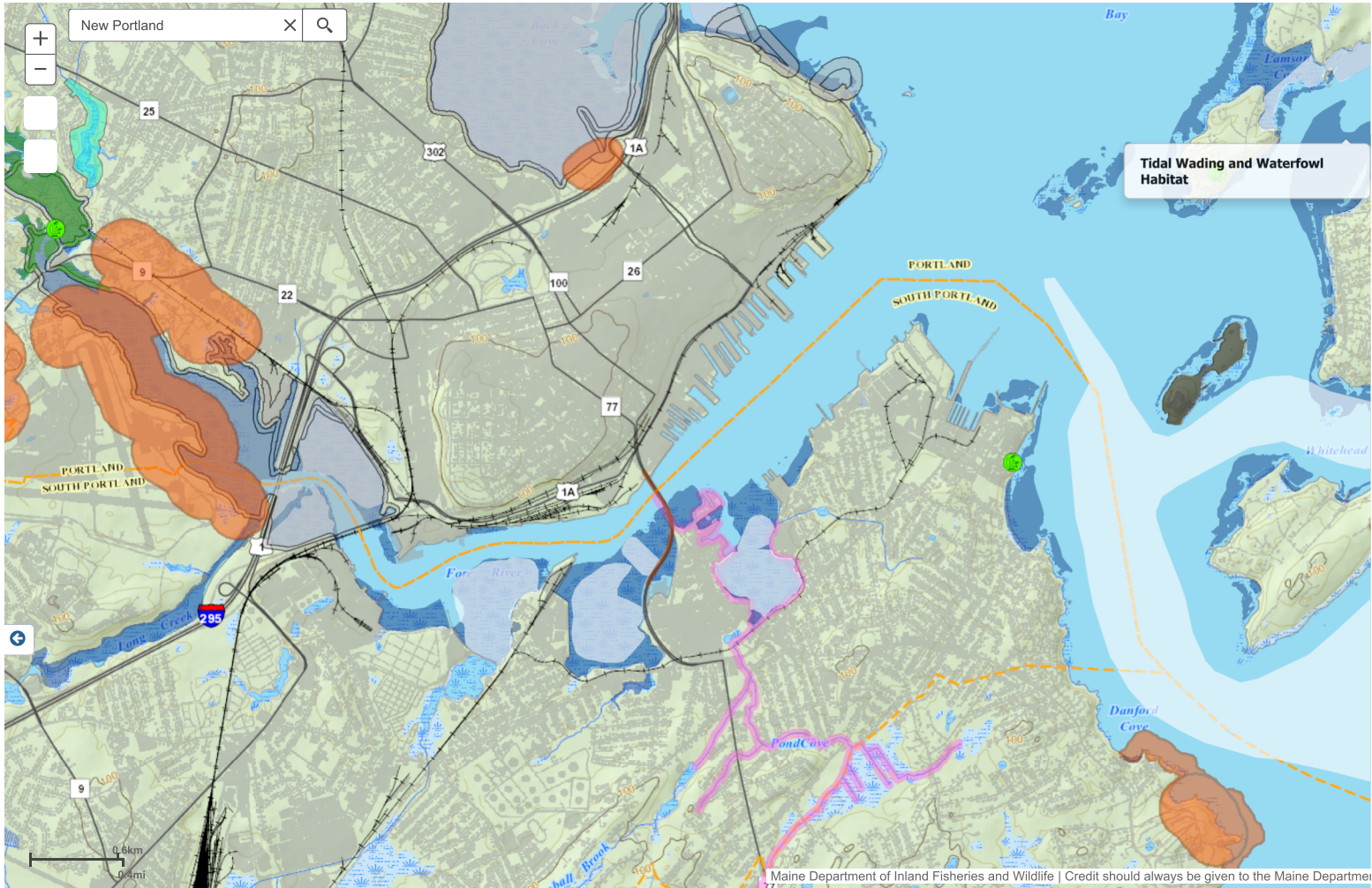
THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Plant and Animal Habitats

Welcome Layers Legend

Legend:

- State Listed Animal Habitats
- Deer Wintering Areas
- Inland Wading Bird and Waterfowl Habitat
- Tidal Wading Bird and Waterfowl Habitat
- Essential Plover and Tern Habitat
- Shorebird Habitat
- Seabird Nesting Islands
- Significant Vernal Pools
- Rare Plant Locations
- Natural Communities
- Shellfish Beds
- Endangered Fish Species
- Wild Brook Trout Habitat
- Atlantic Salmon Spawning Habitat
- Atlantic Salmon Rearing Habitat

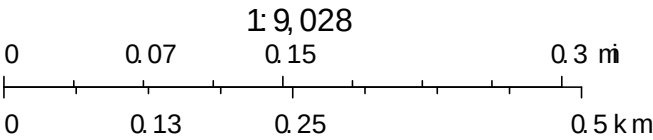


Maine Conserved Lands



9/26/2019, 1:34:29 PM

Maine Conserved Lands - All



Source: Esri, Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



U.S. Fish and Wildlife Service

National Wetlands Inventory

2019.09.26 Wetlands Map



September 26, 2019

Wetlands

 Estuarine and Marine Deepwater	 Freshwater Emergent Wetland	 Lake
 Estuarine and Marine Wetland	 Freshwater Forested/Shrub Wetland	 Other
	 Freshwater Pond	 Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

February 25, 2020

Mr. Jedd Steinglass, LSP
Project Manager
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Ref 4496

Re: Noise Modeling Analyses for SLODA- Compliance Demonstration

Dear Mr. Steinglass:

This letter report presents the results of an acoustic study for the proposed refrigeration facility located at 40 West Commercial Street, Portland, Maine (herein referred to as the Project). The proposed project is a total of 125,572 square feet, with 12 loading docks. The current Project location is a vacant lot that is located in a waterfront port development zone.

The acoustic modeling includes 32 residential receptors, and 3 property line receptors. Two modeling scenarios were performed:

1. daytime: which consists of up to 20 refrigerated trucks, 1 outdoor condenser, and
2. nighttime: which consists of having 10 refrigerated trucks, 1 outdoor condenser.

One-third octave bands were not available for the equipment data used in the model, so as per Maine DEP regulations a 5 dBA penalty was added to the predicted project sound levels.

The results of the acoustic study were compared to the Maine Department of Environmental Protection (Maine DEP) Noise Policy and the City of Portland Zoning Bylaw. **Tables 1** and **2** present the results from the model and demonstrate that the Proposed Project will comply with both the Maine DEP Noise Policy and the City of Portland Code of Ordinance.

1.0 THE DECIBEL SCALE FOR SOUND

All sounds originate with a source – a human voice, vehicles on a roadway, or an airplane overhead. The sound energy moves from the source to a person's ears as sound waves, which are minute variations of air pressure. The loudness of a sound depends on the sound pressure level, which has units of decibel (dB). The decibel scale is logarithmic to accommodate the wide range of sound intensities to which the human ear is subjected. On this scale, the quietest sound we can hear is 0 dB, while the loudest is 120 dB. Every 10-dB increase is perceived as a doubling of loudness. Most sounds we hear in our daily lives have sound pressure levels in the range of 30 dB to 90 dB.

Community noise studies and regulations use an A-weighting scale (dBA) when measuring sound pressure levels as this approximates the response of the human ear to sounds, we experience in everyday life. Typical sound levels associated with various activities and environments are presented in **Figure 1**. Here are examples of sound levels we all encounter. A quiet suburban area at night without any traffic typically has an average sound level of 40 to 45 dBA. The freight train you hear in the distance may be 50 dBA, and crickets and tree frogs in the summer sing a sound level of 55 dBA. Two people having a conversation in a normal tone of voice will hear each other speak at 65 dBA. Standing near a road, a car passing by can produce 75 dBA, and a truck passing by is louder at 80 dBA.

There are various measures of sound pressure designed for different purposes. To establish the background ambient sound level in an area, the L_{90} metric, which is the sound level exceeded 90 percent of the time, is typically used. The L_{90} can also be thought of as the level representing the quietest 10 percent of any time period. The L_{10} metric, which is the sound level exceeded 10 percent of the time is typically used to assess transient noise highway or rail activities. The L_{eq} , or equivalent sound level, is the steady-state sound level over a period of time that has the same acoustic energy as the fluctuating sounds that actually occurred during that same period. It is commonly referred to as the average sound level. The L_{max} , or maximum sound level, represents the one second peak level experienced during a given time period. These are a broadband sound pressure measure, i.e., it includes sounds at all frequencies.

Sound level measurements typically include an analysis of the sound spectrum into its various frequency components to determine tonal characteristics. The unit of frequency is Hertz (Hz), measuring the cycles per second of the sound pressure waves, and typically the frequency analysis examines eleven octave bands from 16 to 16,000 Hz.

2.0 APPLICABLE NOISE REGULATIONS

This section provides a summary of the Maine Department of Environmental Protection (Maine DEP) Noise Policy and the City of Portland Code of Ordinance.

2.1 Maine Department of Environmental Protection Noise Policy

The Maine Department of Environmental Protection (Maine DEP) 06-096 Chapter 375 (10) Control of Noise. There are three criteria that could apply, the first is at the industrial fenceline, Chapter 375 (10) (1) (a) (i), and the second is at the fenceline of the residential locations, Chapter 375 (10) (1) (a) (ii). Both of these assume that the background is less than these limits. If the background is great than these limits because of existing background sound then the limit for the industrial fenceline, the residential fenceline, or possibly both could be an incremental increase Chapter 375 (10).

(1)(a)(i) At any property line of the development or contiguous property owned by the developer, whichever is farther from the proposed development's regulated sound sources:

75 dBA at any time of day.

(1)(a)(ii) At any protected location in an area for which the zoning, or, if unzoned, the existing use or use contemplated under a comprehensive plan, is not predominantly commercial, transportation, or industrial;

*60 dBA between 7:00 a.m. and 7:00 p.m.
(the "daytime hourly limit"), and
50 dBA between 7:00 p.m. and 7:00 a.m.
(the "nighttime hourly limit").*

Tech was provided with the "City of Portland Baseline Sound Monitoring Report" which included sound measurements taken near the project site, at Location: 10- Casco Bay Bridge, where the lowest measured day time and night time sound levels were 66 dBA and 57 dBA respectively. Location 3- Fore and Union, is a representative location for the residential area and the lowest measured day and nighttime sound levels were 60 dBA and 54 dBA.

Based on the provided Maine regulations "Notwithstanding the above, the developer need not measure or estimate the pre-development ambient hourly sound levels at a protected location if he demonstrates, by estimate for example, that the hourly sound levels resulting from routine operation of the development will not exceed 50 dBA in the daytime or 40 dBA at night" The pre-existing background of the project location and residential area are above 50 dBA (day) and 40 dBA (night). Which demonstrates that the developer does not need to take measurements and instead can use the limits presented in Chapter 375 (10) stated above.

2.2 City of Portland Code of Ordinance

The Project is located in a zoning area labeled as waterfront port development. The City of Portland Code of Ordinance Chapter 14 Sec. 14-320.3 states the following:

All uses in the waterfront port development zone shall comply with the following standards.

(b) Noise:

1. The level of sound, measured by a sound level meter with frequency weighting network (manufactured according to standards prescribed by the American National Standards Institute, Inc.), inherently and recurrently generated within the waterfront port development zone between the hours of 7:00 p.m. and 7:00 a.m. from industrial facilities or operation commenced on or after July 1, 1988, shall not exceed fifty-five (55) decibels on the A scale at or within the boundaries of any residential zone, except for sound from construction activities, sound from traffic on public streets, sound from temporary activities such as festivals, and sound created as a result of, or relating to, an emergency, including sound from emergency warning signal devices.

To comply with the City of Portland Code of ordinance the proposed project predicted sound levels cannot exceed fifty-five (55) decibels on the A scale at or within the boundaries of any residential zone.

3.0 ACOUSTIC MODELING APPROACH AND RESULTS

This section provides a summary of the acoustic modeling approach and results.

3.1 Acoustic Modeling Approach

The future sound levels from the Project, when it is producing maximum electrical power, were calculated with the Cadna/A acoustic model. Cadna/A is a three-dimensional model for sound propagation and attenuation based on International Standard ISO 9613¹. Atmospheric absorption, the process by which sound energy is absorbed by the air, was calculated using ANSI S1.26-1995.² Digital terrain data for the Project areas were analyzed to obtain terrain heights. The model assumes the most-favorable sound propagation conditions, as occur under downwind conditions or during a ground-based temperature inversion on a clear night. Under these atmospheric conditions, sound travels further than if a person is upwind from a source and the atmosphere is well mixed, which would dampen the sound. Tech used refrigerated truck sound data from past noise projects to model twenty (20) refrigerated trucks for the daytime, and ten (10) refrigerated trucks during the nighttime, and was provided sound data to model one (1) condenser. A safety factor of 2 dBA was added onto each sound source.

Figure 2 shows modeling receptors included in Cadna/A representing both the residential and property line receptors.

3.2 Acoustic Modeling Results

Presented in this section is the predicted daytime and night sound levels for the Project and a comparison of compliance to the Maine DEP Noise Policy and Portland Noise Bylaw. Attachment A presents the acoustic modeling results.

Table 1 presents the predicted project daytime and nighttime sound levels, and one-third octave bands were not available for the equipment data used in the model, as per Maine DEP regulations a 5 dBA penalty was added to the predicted project sound levels. The predicted sound level increases were zero decibels above daytime and nighttime sound levels limits. The predicted project sound levels compared to the City of Portland noise limits are presented in **Table 2**, the predicted sound level increases were zero decibels above daytime and nighttime sound level limits.

Decibel-level contour maps of the predicted Project daytime and nighttime sound levels are presented in **Figures 3 and 4**.

¹ International Standard, ISO 9613-2, Acoustics – Attenuation of Sound During Propagation Outdoors, -- Part 2 General Method of Calculation.

² American National Standards Institute, ANSI S1.26-1995, “American National Standard Method for the Calculation of the Absorption of Sound by the Atmosphere,” 1995.

**Table 1:
Predicted Project Sound Levels Compliance with Maine DEP Noise Limits**

Receptor #	Address	Predicted Project Sound Levels (dBA)		Predicted Project Sound Levels (dBA) with additional 5 dBA for Tonal Sound		Maine DEP Noise Limits (dBA)		Compliance	
		Day	Night	Day	Night	Day	Night	Day	Night
1	65 Summer St 1FL	34	33	39	38	60	50	Yes	Yes
2	65 Summer St 2FL	34	33	39	38	60	50	Yes	Yes
3	51 Summer St 1FL	34	33	39	38	60	50	Yes	Yes
4	51 Summer St 2FL	34	33	39	38	60	50	Yes	Yes
5	49 Summer St 1FL	34	32	39	37	60	50	Yes	Yes
6	49 Summer St 2FL	34	33	39	38	60	50	Yes	Yes
7	45 Summer St 1FL	32	30	37	35	60	50	Yes	Yes
8	45 Summer St 2FL	33	32	38	37	60	50	Yes	Yes
9	33 Summer St 1FL	30	28	35	33	60	50	Yes	Yes
10	33 Summer St 2FL	31	29	36	34	60	50	Yes	Yes
11	28 Summer St 1FL	28	26	33	31	60	50	Yes	Yes
12	28 Summer St 2FL	29	27	34	32	60	50	Yes	Yes
13	265 York St 1FL	29	27	34	32	60	50	Yes	Yes
14	265 York St 2FL	32	30	37	35	60	50	Yes	Yes
15	78 Salem St 1FL	32	31	37	36	60	50	Yes	Yes
16	78 Salem St 2FL	33	32	38	37	60	50	Yes	Yes
17	82 Salem St 1FL	34	33	39	38	60	50	Yes	Yes
18	82 Salem St 2FL	35	35	40	40	60	50	Yes	Yes
19	90 Salem St 1FL	33	32	38	37	60	50	Yes	Yes
20	90 Salem St 2FL	34	33	39	38	60	50	Yes	Yes
21	84R Salem St 1FL	31	30	36	35	60	50	Yes	Yes
22	84R Salem St 2FL	32	32	37	37	60	50	Yes	Yes
23	88 Salem St 1FL	31	29	36	34	60	50	Yes	Yes
24	88 Salem St 2FL	32	32	37	37	60	50	Yes	Yes
25	263 York St 1FL	29	27	34	32	60	50	Yes	Yes
26	263 York St 2FL	31	29	36	34	60	50	Yes	Yes
27	259 York St 1FL	28	26	33	31	60	50	Yes	Yes
28	259 York St 2FL	30	28	35	33	60	50	Yes	Yes
29	251 York St 1FL	28	26	33	31	60	50	Yes	Yes
30	251 York St 2FL	29	27	34	32	60	50	Yes	Yes
31	24 Brackett St 1FL	28	26	33	31	60	50	Yes	Yes
32	24 Brackett St 2FL	30	27	35	32	60	50	Yes	Yes
33	Property Line Receptor 1	56	56	61	61	75	75	Yes	Yes
34	Property Line Receptor 2	42	39	47	44	75	75	Yes	Yes
35	Property Line Receptor 3	69	64	74	69	75	75	Yes	Yes

**Table 2:
Predicted Project Sound Levels Compliance with City of Portland Noise Limits**

Receptor #	Address	Predicted Project Sound Levels (dBA)		City of Portland Noise Limits (dBA)		Compliance	
		Day	Night	Day	Night	Day	Night
1	65 Summer St 1FL	34	33	55	55	Yes	Yes
2	65 Summer St 2FL	34	33	55	55	Yes	Yes
3	51 Summer St 1FL	34	33	55	55	Yes	Yes
4	51 Summer St 2FL	34	33	55	55	Yes	Yes
5	49 Summer St 1FL	34	32	55	55	Yes	Yes
6	49 Summer St 2FL	34	33	55	55	Yes	Yes
7	45 Summer St 1FL	32	30	55	55	Yes	Yes
8	45 Summer St 2FL	33	32	55	55	Yes	Yes
9	33 Summer St 1FL	30	28	55	55	Yes	Yes
10	33 Summer St 2FL	31	29	55	55	Yes	Yes
11	28 Summer St 1FL	28	26	55	55	Yes	Yes
12	28 Summer St 2FL	29	27	55	55	Yes	Yes
13	265 York St 1FL	29	27	55	55	Yes	Yes
14	265 York St 2FL	32	30	55	55	Yes	Yes
15	78 Salem St 1FL	32	31	55	55	Yes	Yes
16	78 Salem St 2FL	33	32	55	55	Yes	Yes
17	82 Salem St 1FL	34	33	55	55	Yes	Yes
18	82 Salem St 2FL	35	35	55	55	Yes	Yes
19	90 Salem St 1FL	33	32	55	55	Yes	Yes
20	90 Salem St 2FL	34	33	55	55	Yes	Yes
21	84R Salem St 1FL	31	30	55	55	Yes	Yes
22	84R Salem St 2FL	32	32	55	55	Yes	Yes
23	88 Salem St 1FL	31	29	55	55	Yes	Yes
24	88 Salem St 2FL	32	32	55	55	Yes	Yes
25	263 York St 1FL	29	27	55	55	Yes	Yes
26	263 York St 2FL	31	29	55	55	Yes	Yes
27	259 York St 1FL	28	26	55	55	Yes	Yes
28	259 York St 2FL	30	28	55	55	Yes	Yes
29	251 York St 1FL	28	26	55	55	Yes	Yes
30	251 York St 2FL	29	27	55	55	Yes	Yes
31	24 Brackett St 1FL	28	26	55	55	Yes	Yes
32	24 Brackett St 2FL	30	27	55	55	Yes	Yes

4.0 CONCLUSION

Tech performed an acoustic modeling study for the proposed refrigeration facility located at 40 West Commercial Street. The future sound levels from the Project, were calculated with the Cadna/A acoustic model. The model included twenty (20) refrigerated trucks for the daytime, and ten (10) refrigerated trucks during the nighttime, and one (1) condenser; and 32 residential receptors, and 3 property line receptors. One-third octave bands were not available for the equipment data used in the model, so as per Maine DEP regulations a 5 dBA penalty was added to the predicted project sound levels.

The study demonstrated that because the pre-existing sound levels are in the 50-60 dBA range for day time and nighttime sound levels, the Project operations will not cause an increase in the existing sound levels. The results of the acoustic study were then compared to the Maine Department of Environmental Protection (Maine DEP) Noise Policy and the City of Portland Zoning Bylaw. If Project includes the equipment that were modeled and the surrounding area does not have a pre-existing tonal sound, there would be no observed tonal sounds predicted at the site property lines or the residential receptors. Therefore, the Projects will comply with both the Maine DEP Noise Policy and the City of Portland Code of Ordinance.

Please call if you have any questions regarding this report.

Sincerely,

TECH ENVIRONMENTAL, INC.



Michael T. Lannan, P.E.

President

4496/ Letter Report December 2019

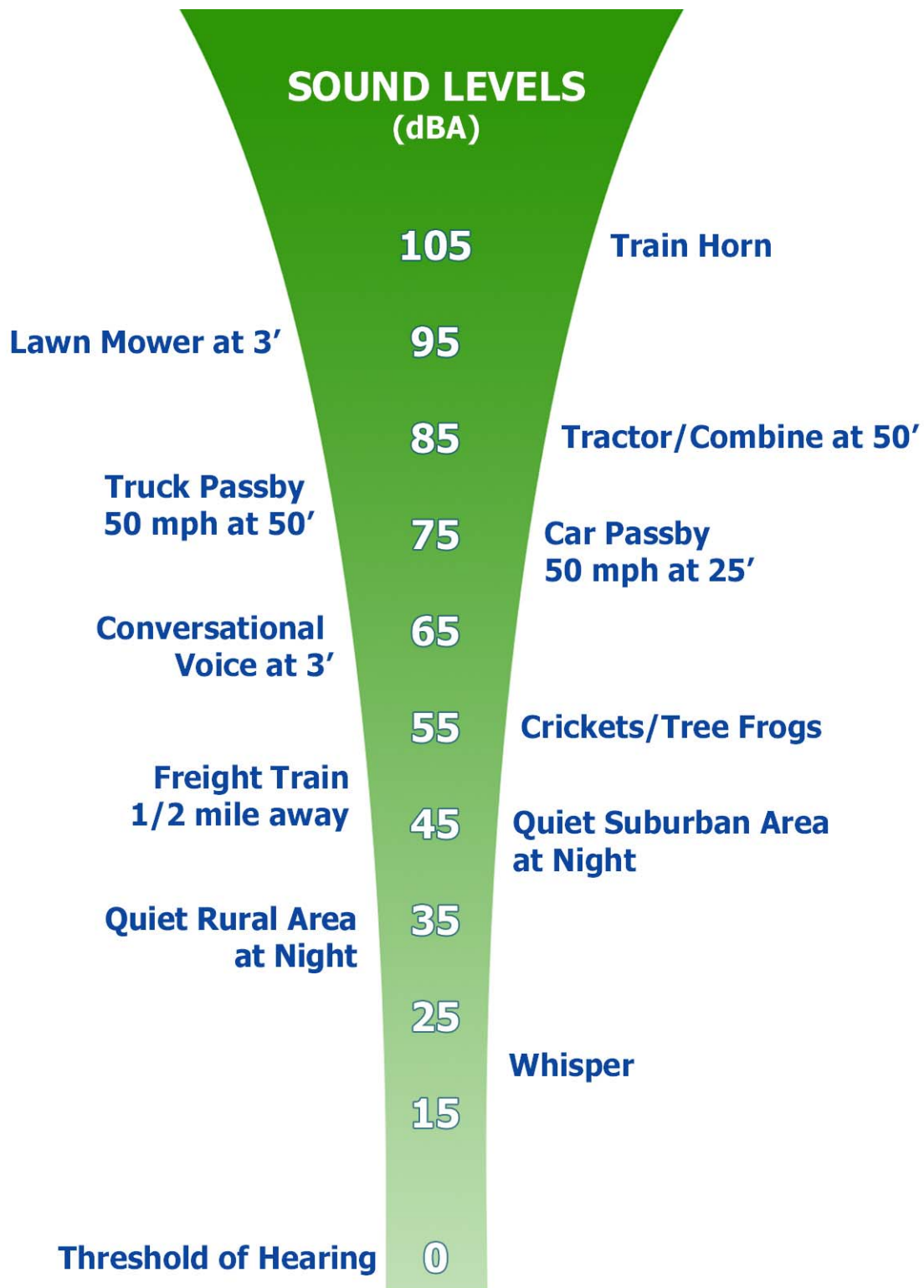


FIGURE 1.
Common Outdoor Sound Levels

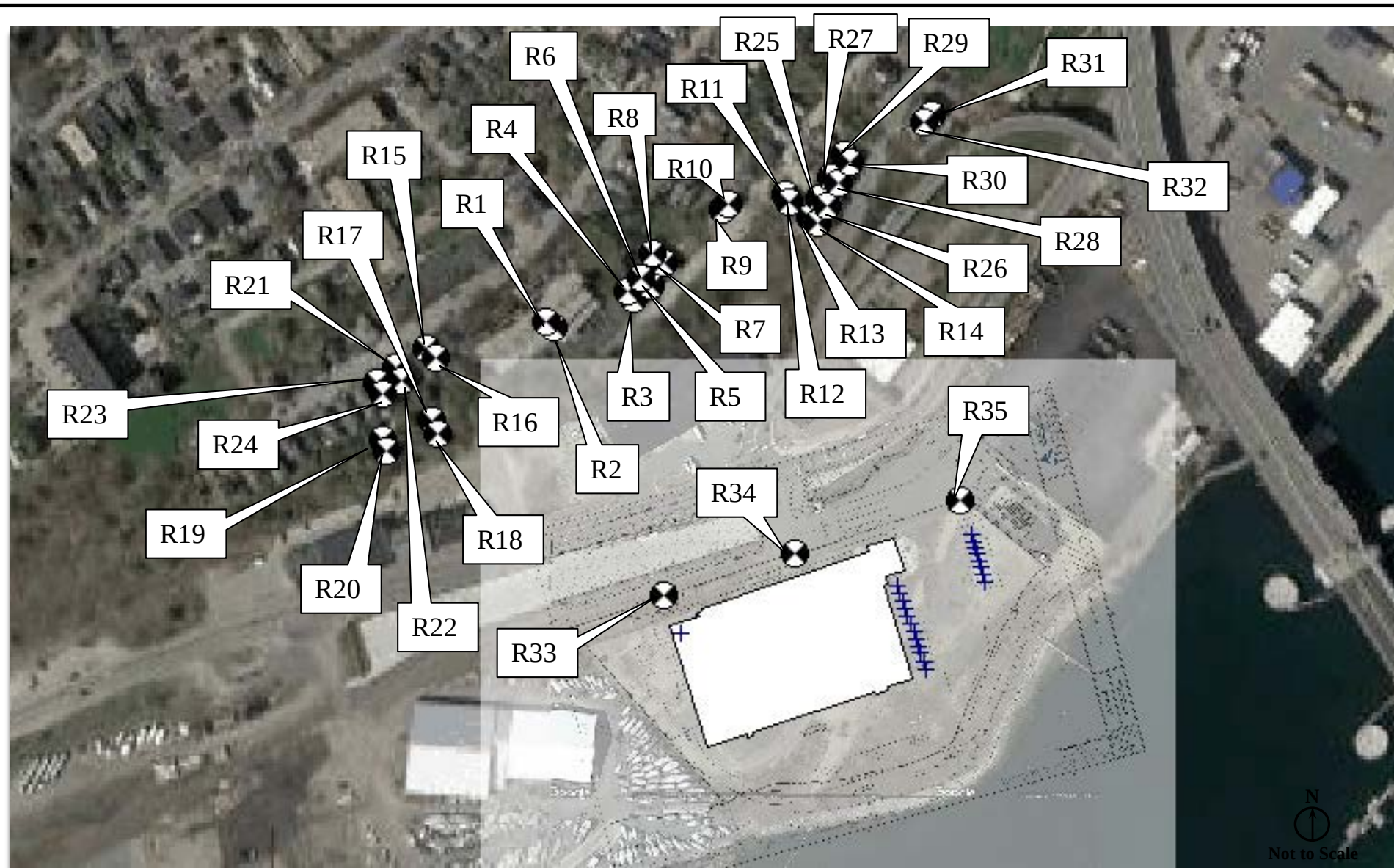


FIGURE 2.
Modeling Receptors Location
40 West Commercial Street, Portland, ME

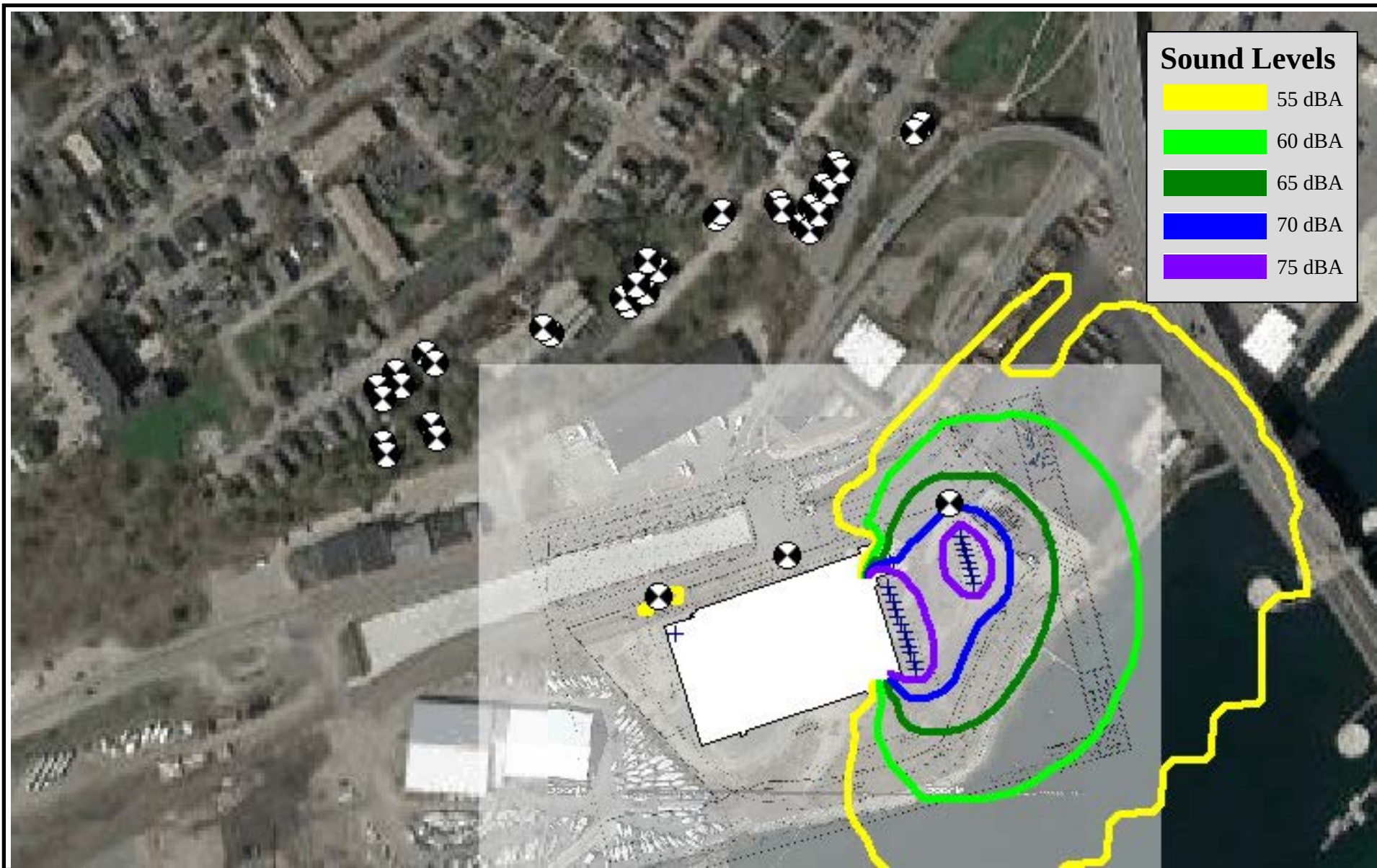


FIGURE 3.
Daytime Predicted Sound Levels
40 West Commercial Street, Portland, ME

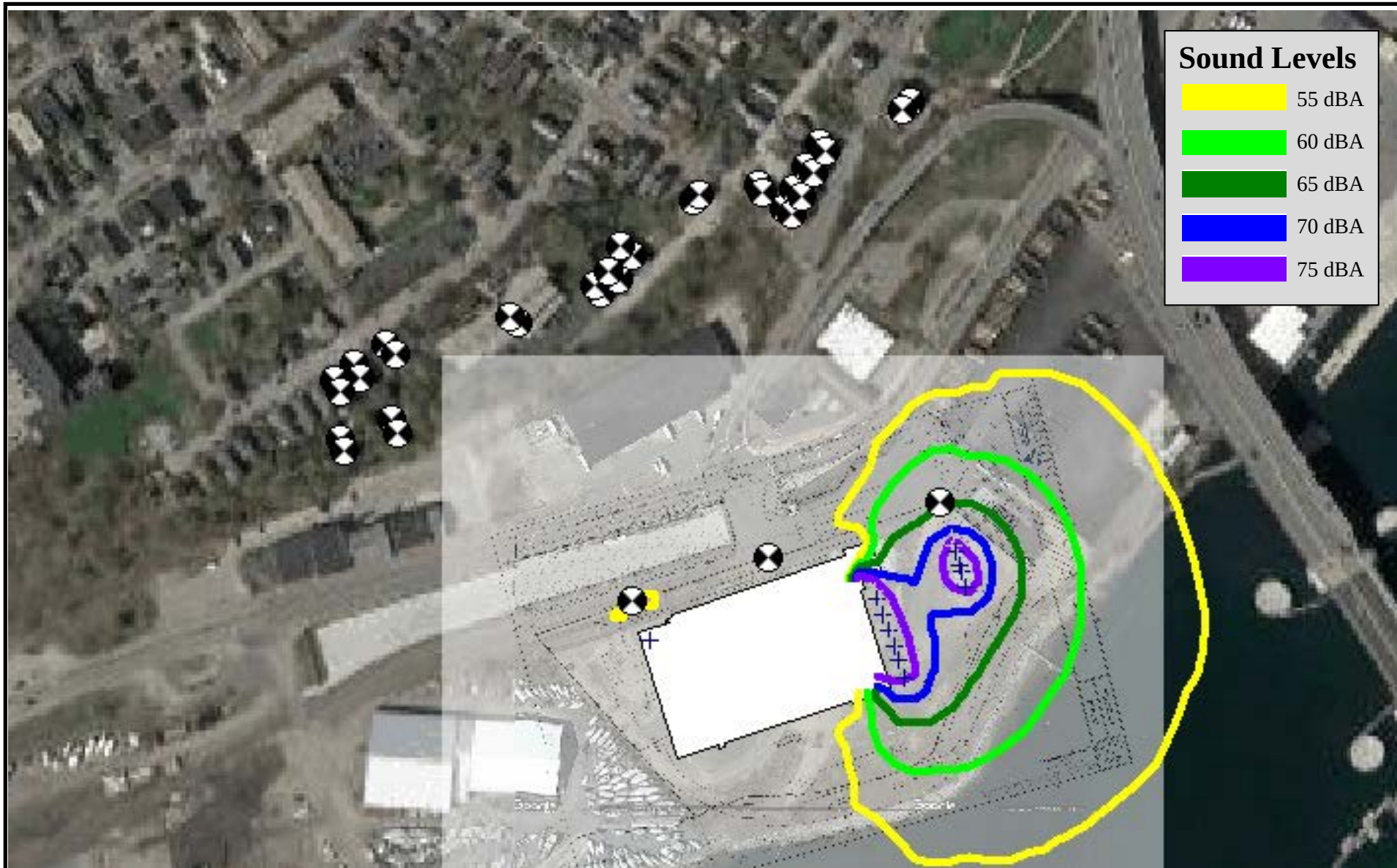


FIGURE 3.
Nighttime Predicted Sound Levels
40 West Commercial Street, Portland, ME

Main Port Authority Cold Storage Facility
Portland, Maine

March 2, 2020

PROPOSED SITE LIGHTING

Basis of Site Lighting Design

The *Illuminating Engineering Society of North America (IESNA)* published recommended lighting standards for marine port facilities in RP-40-19 Recommended Practice: Lighting Port Terminals. RP-40-19 recommends the following horizontal illuminance levels:

Average Illuminance at Grade:	3.5 footcandles
Minimum Illuminance at Grade:	1.0 footcandle
Maximum-to-Minimum Uniformity Ratio:	6.0-to-1 or less

Section 12 of the City of Portland Technical Manual stipulates the following illuminance design criteria:

Average Illuminance at Grade:	1.25 footcandles
Minimum Illuminance at Grade:	0.2 footcandle
Maximum Illuminance at Grade:	5.0 footcandles
Maximum-to-Minimum Uniformity Ratio:	20.0-to-1 or less

Additionally, The Technical Manual stipulates that the maximum lighting pole height for large industrial facilities (> 50,000 SF) be not greater than 30-feet.

The proposed site lighting design has been prepared to provide user safety while respecting reasonable design criteria. The requirement to keep the marine port loading/unloading and dock vehicle areas clear of lighting poles makes the lighting layout a challenge given the width of the paved area. Lighting for this area is proposed to consist of lighting poles along the perimeter of the paved area, as well as building mounted lighting. The following design criteria serve as the basis for the site lighting design:

- Illuminance Levels:
 - Parking Lot and Access Drives

Average Illuminance at Grade:	1.25 footcandles
Minimum Illuminance at Grade:	0.2 footcandle
Maximum Illuminance at Grade:	5.0 footcandles
Maximum-to-Minimum Uniformity Ratio:	20.0-to-1 or less
 - Marine Cold Storage Loading/Unloading Area

Average Illuminance at Grade:	2.5 footcandles
Minimum Illuminance at Grade:	0.75 footcandle
Maximum Illuminance at Grade:	5.0 footcandles
Maximum-to-Minimum Uniformity Ratio:	6.0-to-1 or less
- Mounting Heights
 - Parking Lot and Access Drives
 - Lighting Poles: 20-feet (maximum)
 - Building Mounted Lights: 20-feet (maximum)
 - Marine Cold Storage Loading/Unloading Area
 - Lighting Poles: 30-feet (maximum)
 - Building Mounted Lights: 30-feet (maximum)

Requirements for site lighting are addressed by the City of Portland in two documents: The City of Portland, Maine - Code of Ordinances, and the City of Portland - Technical Manual. Listed below are the issues pertaining to the proposed site lighting as relates to the two city documents.

The City of Portland - Maine Code of Ordinances

Chapter 14 – Land Use

Article V Site Plan

14-526.6 Exterior Lighting

a. Site Lighting

- (i) *All exterior site lighting, including lighting of building entrances, shall be full cut-off with no light emitted above the horizontal plane or spilled onto adjacent properties and streets. Illumination levels shall be adequate but not excessive for safety, comfort and convenience of occupants and users of the site and shall conform to applicable standards of Section 12 of the Technical Manual.*

RESPONSE: The *Illuminating Engineering Society of North America (IESNA)* classifies exterior luminaires in the publication *IESNA TM-15-11* according to their potential for producing uplight. The rating system is a numeric index that ranges from zero (no uplight) to five (greater than 1000 lumens uplight). All of the proposed site lighting luminaires are classified as having an uplight rating of (U0) Zero Uplight Component.

14-526.6 Exterior Lighting

a. Site Lighting

- (ii) *For major or minor site plans within or abutting a residential use or zone where light from the proposed development may adversely impact adjacent residential properties, exterior lighting shall employ house-side shielding.*

RESPONSE: Not applicable (project does not abut a residential zone)

The City of Portland Technical Manual

Section 12 Site Lighting Standards

12.3 General Standards

Outdoor lighting standards listed below apply to all new developments. 12.3.

1. **Uniformity:** *As measured in foot candles at grade, maximum-to-minimum illumination levels shall not exceed a ratio of twenty (20) to one (1.).*

RESPONSE: The maximum-to-minimum illumination ratio for the proposed site lighting is:

- Access Drives 11.0-to-1
- Parking Lot 3.0-to-1
- Marine Loading/Unloading Area 6.0-to-1

-
2. **Illumination Levels:** *Minimum, Maximum, and Average illumination levels for areas intended to be lighted, as measured at grade, shall be:*

<u>Minimum</u>	<i>0.2 footcandles (fc)</i>
<u>Maximum</u>	<i>5.0 footcandles (fc)</i>
<u>Average</u>	<i>1.25 footcandles (fc)</i>

RESPONSE: The illumination levels for the proposed site lighting are as follows:

- Front Access Drive:
 - Average Illuminance at Grade: 1.2 footcandles
 - Minimum Illuminance at Grade: 0.6 footcandle
 - Maximum Illuminance at Grade: 2.2 footcandles

- Rear Access Drive:
 - Average Illuminance at Grade: 1.2 footcandles
 - Minimum Illuminance at Grade: 0.3 footcandle
 - Maximum Illuminance at Grade: 5.0 footcandles
- West Parking Lot:
 - Average Illuminance at Grade: 1.2 footcandles
 - Minimum Illuminance at Grade: 0.7 footcandle
 - Maximum Illuminance at Grade: 1.9 footcandles
- Overall Marine Port Loading/Unloading Area:
 - Average Illuminance at Grade: 2.6 footcandles
 - Minimum Illuminance at Grade: 1.0 footcandle
 - Maximum Illuminance at Grade: 4.9 footcandles
- Loading/Unloading Docks Area:
 - Average Illuminance at Grade: 3.0 footcandles
 - Minimum Illuminance at Grade: 1.4 footcandle
 - Maximum Illuminance at Grade: 4.9 footcandles

The proposed minimum and maximum illuminance levels conform to the 12.3.2 standard. The average illuminance at the marine port loading/unloading area exceeds the 1.25 footcandle criteria as stipulated in the City Technical Manual. The average illuminance in this area is proposed as being necessary to promote the safety of loading/unloading activities.

3. Lumens: No fixture shall exceed 20,000 lumens (+/- 3%)

Types of Lighting	Maximum Lumens Allowed
Building Entrance	3,500 lumens

RESPONSE: The lumen ratings of the proposed site lighting luminaires at building entrances are all less than 3,500 lumens. The lumen rating of the proposed site lighting luminaires along the access drives, and at the parking lot are less than 20,000 lumens.

- | | | | |
|--------------------|--------------|------------------|--------------|
| • Fixture Type S1A | 2,846 lumens | Fixture Type S4A | 5,492 lumens |
| • Fixture Type S2A | 1,424 lumens | Fixture Type S4B | 5,492 lumens |
| • Fixture Type S2B | 9,300 lumens | Fixture Type S4C | 5,492 lumens |

The lumen rating of the pole lights (Types S4D and S4E) that illuminate the marine port loading/unloading area exceed 20,000 lumens. Although this exceeds the 12.3.3 standard it is suggested that this is appropriate considering the potential for user safety at these areas.

- | | | | |
|--------------------|---------------|------------------|---------------|
| • Fixture Type S4D | 25,913 lumens | Fixture Type S4E | 24,280 lumens |
|--------------------|---------------|------------------|---------------|

4. Light Trespass: The maximum illumination level at a property line shall not exceed 0.1-foot candle, as measured at grade, except where abutting industrial, or other non-sensitive uses. When a commercial or industrial use abuts a public right-of-way, or another commercial or industrial use, lighting must be designed so that the illumination at the property boundary line does not exceed 1.0 foot-candles.

RESPONSE: No illuminance level across the property line exceeds 0.1 footcandle.

5. Luminaire Types: All fixtures must be LED and shall not exceed 3000K Correlated Color Temperature (CCT). Screw in light fixtures must have LED lamp specified to be maximum of 3000K CCT.

RESPONSE: All proposed light fixtures utilize LED lamps with 3000K CCT.

6. Full Cut-off Fixtures and Shielding Required: All outdoor lighting fixtures, including pole mounted and wall mounted luminaires, shall be constructed Full “cut-off” or with full shielding, type where lenses, refractors or lamp sources do not extend below the surface of the fixture housing and no direct light shall be directed at or above the horizontal plane.

Where the light source from an outdoor light fixture is visible beyond the property line, shielding shall be required to reduce glare so that the light source is not visible from within any residential dwelling unit.

Light fixtures mounted under a canopy shall be recessed to that the lens cover is recessed into, or flush with, the underside (ceiling) of the canopy.

RESPONSE: All proposed site lighting luminaires are classified as “full cut-off”. The construction of the proposed canopies does not allow for recessed light fixtures. The proposed canopy-mounted light fixtures (Type S1A) are surface mounted on the underside of entrance canopies, and they include flush lenses that do not project below the fixture housing.

8. Fixture Height: Fixtures shall be mounted at the lowest height necessary to meet city standards and the height is measured from grade to the bottom of the light fixture.

Type of Lighting	Maximum Fixture Height
Residential (Pedestrian) Uses	20 feet
Commercial/ Office Uses	20 feet
Large Industrial Uses (50,000 sf or more- gross floor area)	30 feet
Building Mounted/ Entrances	below the roof eave and not to exceed 20 feet, whichever is lower
Bollard Fixtures	42 inches (3.5 feet)

RESPONSE: The maximum height of proposed site lighting fixtures at access drives, the parking lot, and at entrance/exit doors is less than 20 feet. The maximum height of proposed site lights at the marine port loading/unloading area is 30 feet.

9. Lighting Curfew: For surface and structured parking, lighting in vehicle parking areas containing twenty (20) or more parking spaces shall be reduced to 50% of permitted levels from one hour after business closing to one hour before business opening. If lighting levels are already below 50% of permitted levels, no curfew adjustment is required. Motion sensor activated lighting shall be permitted during closing hours to activate additional lighting above the 50% permitted, for the purposes of public safety.

RESPONSE: The facility operation extends 24 hours per day. Accordingly, it is proposed that the site lighting be operational for all hours from dusk until dawn.

10. Continued Maintenance: Lighting installations must be maintained in good repair to meet the provisions of this ordinance on an on-going basis.

RESPONSE: All proposed lighting will be maintained in full working order.

11. General Exceptions: proposed uses that demonstrate a need to exceed the specific site lighting limits shown below for safe and reasonable exercise of the proposed use must provide a professionally produced lighting plan which adheres to the current Illuminating Engineering Society of North America (IESNA) recommendations for the proposed use. The planning Authority may grant exceptions to the lighting standards with the finding that the light impacts do not create a public nuisance for abutting residential property. Unless otherwise specified below, exterior lighting shall conform to the recommendations put forth in Lighting for Exterior Environments RP-33-14, or its successor, published by the Illuminating Engineering Society of North America (IESNA). Lighting fixtures other than full cut-off fixtures

may be allowed only if acceptable luminaires shall include internal and/or external glare control louvers and installed so as to minimize uplight and offsite light trespass.

RESPONSE: The proposed lighting conforms to the recommendations published in Lighting for Exterior Environments RP-33-14

The following exceptions to the City of Portland Technical Manual are requested:

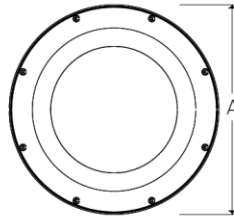
- Paragraph 12.3.2
Proposed average illuminance at the marine port loading/unloading area:
3.0 footcandles
- Paragraph 12.3.3
Proposed lumen rating for Type S4D pole lights at the marine port loading/unloading area:
25,913 lumens
- Paragraph 12.3.3
Proposed lumen rating for Type S4E pole lights at the marine port loading/unloading area:
24,280 lumens

Maine Port Authority Cold Storage Facility
Portland, Maine
March 2, 2020

PROPOSED SITE LIGHTING LUMINAIRES AND LIGHTING POLES

- TYPE S1A:** UNDER-CANOPY LIGHTS WITH AN IES TYPE 5QW DISTRIBUTION PATTERN.
- TYPE S1B:** UNDER-CANOPY LIGHTS WITH AN IES TYPE 5C DISTRIBUTION PATTERN.
- TYPE S2A:** WALL LIGHTS ABOVE ENTRANCE/EXIT DOORS.
- TYPE S2B:** WALL LIGHTS ILLUMINATING THE MARINE PORT LOADING/UNLOADING AREA.
- TYPE S4A:** POLE LIGHT WITH 18-FOOT TALL POLE INSTALLED ON A CONCRETE FOUNDATION BASE WITH 6-INCHES OF THE BASE EXPOSED ABOVE GRADE. THE LIGHTING POLE TO INCLUDE A 24" BRACKET ARM. THE LUMINAIRE WILL HAVE AN IES TYPE 3 DISTRIBUTION PATTERN AND WILL BE DIMMED TO 70% RATED OUTPUT.
- TYPE S4B:** POLE LIGHT WITH 18-FOOT TALL POLE INSTALLED ON A CONCRETE FOUNDATION BASE WITH 6-INCHES OF THE BASE EXPOSED ABOVE GRADE. THE LIGHTING POLE TO INCLUDE A 24" BRACKET ARM. THE LUMINAIRE WILL HAVE AN IES TYPE 4 DISTRIBUTION AND WILL BE DIMMED TO 70% RATED OUTPUT.
- TYPE S4C:** POLE LIGHT WITH 16-FOOT TALL POLE INSTALLED ON A CONCRETE FOUNDATION BASE WITH 30-INCHES OF THE BASE EXPOSED ABOVE GRADE. THE LIGHTING POLE TO INCLUDE A 24" BRACKET ARM. THE LUMINAIRE WILL HAVE AN IES TYPE 4W DISTRIBUTION PATTERN AND WILL BE DIMMED TO 70% RATED OUTPUT.
- TYPE S4D:** POLE LIGHT WITH 25-FOOT TALL POLE INSTALLED ON A CONCRETE FOUNDATION BASE WITH 48-INCHES OF THE BASE EXPOSED ABOVE GRADE. THE LIGHTING POLE TO INCLUDE A 96" BRACKET ARM. THE LUMINAIRE WILL HAVE AN IES TYPE 4W DISTRIBUTION.
- TYPE S4E:** POLE LIGHT WITH 25-FOOT TALL POLE INSTALLED ON A CONCRETE FOUNDATION BASE WITH 48-INCHES OF THE BASE EXPOSED ABOVE GRADE. THE LIGHTING POLE TO INCLUDE A 96" BRACKET ARM. THE LUMINAIRE WILL HAVE AN IES TYPE 4W DISTRIBUTION.

SRT1 EDGE-LIT



A	B	Weight
12" (304mm)	3.1" (78mm)	8lbs (3.6kg)

- For ceiling mount and parking garage applications from an 8–15 foot mounting height
- Edge-lit flat lens for optimal visual comfort and uniformity across the lens
- Two optical distributions specifically design for parking garage and canopy applications are available making the Beacon Edge-Lit luminaire both versatile and functional
- UL/cUL listed for wet locations, IP65 and 3G vibration rated
- Occupancy sensor available for complete on/off and dimming operation

HOUSING

- Die-cast aluminum housing ensures long electrical component life and luminaire performance
- Corrosion resistant powder coat finish both protects and provides architectural appearance
- One piece molded silicone gasket ensures weather proof seal
- Thermally isolated driver mounted to dedicated bracket reduces operating temperatures and increases driver life and reliability

OPTICS

- Edge-lit acrylic light guide provides blended non-pixelated light for unprecedented visual comfort
- Choice of multiple light outputs with lumen range of 2500–6000
- Two distribution types: Type 5 Square Wide, Type 5 Concentrated
- Wide variety of CCT's and CRI's offered: 3000K (70CRI), 3000K (80CRI), 3500K (80CRI), 4000K (70CRI), 4000K (80CRI) or 5000K (70 CRI) CCT

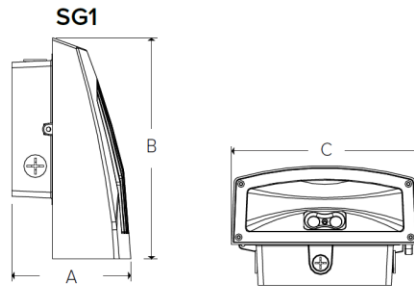
Series	Engine	CCT	Distribution	Voltage	Color/Finish
SRT1 Edge-Lit Parking Garage Size 1	20 20W Nominal 2500 lm 35 35W Nominal 4000 lm 55 55W Nominal 6000 lm	3K7 3000K, 70 CRI 3K8 3000K, 80 CRI 35K7 3500K, 80 CRI 4K7 4000K, 70 CRI 4K8 4000K, 80 CRI 5K7 5000K, 70 CRI	5QW Type 5 Square Wide 5C Type 5 Concentrated	UNV 120V-277V 120 120V 208 208V 240 240V 277 277V	BL Textured Black DB Textured Dark Bronze GT Graphite Textured GYS Smooth Gray PS Smooth Plat. Silver

Nominal Watts	Nominal Lumens	Distribution	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 70 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
20	3000	5C	3093	136.86	1	0	1	3078	136.21	1	0	1	2960	130.97	1	0	1
		5QW	2974	131.60	1	0	1	2960	130.97	1	0	1	2846	125.93	1	0	1

Type S1A: 5QW Distribution; **Type S1B:** 5C Distribution



SLING SERIES



A	B	C	Weight
4.19" (107mm)	7.80" (198mm)	6.61" (168mm)	4.4lbs (2kg)

HOUSING

- Rugged die-cast aluminum housing with corrosion resistant powder coat finish
- Heating dissipating fins provide superior thermal performance extending the life of the electronic components
- Impact resistant tempered glass offers zero uplight
- Comfort lens available as an option or accessory to reduce glare (7-10% lumen reduction) and provide better uniformity

OPTICS

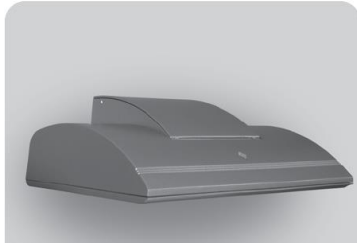
- 3000K, 4000K and 5000K CCT nominal with 70 CRI
- Smaller SG1 housing has 2 LEDs, larger SG2 housing has 3 LEDs

- SG1 Series replaces from 100W-150W HID; SG2 Series replaces from 150W-250W HID
- Comfort lens available as an option or accessory provides glare control and enhanced uniformity
- Knuckle and trunnion accessory mounting kits available for flood applications
- IP65 and certified to UL 1598 for use in wet locations up to 40°C ambient
- DLC (DesignLights Consortium Qualified - see www.designlights.org)

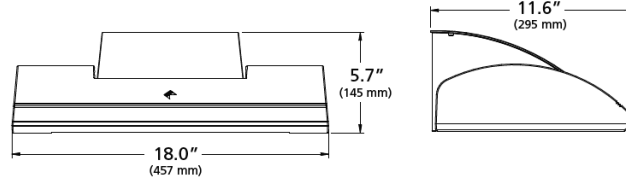
Housing	CCT/CRI	Distribution	Voltage	Color/Finish	Control Options	Options
SG1-10 Size 1, 10W	3K7 3000K, 70 CRI	FT Fwd Throw	UNV 120V-277V	DB Textured Dark Bronze	PCU Universal Button Photocontrol (120-277V)	CS Comfort Lens
SG1-20 Size 1, 20W	4K7 4000K, 70 CRI		120 120V	BL Textured Black	SCP ^{1,2,3} Occupancy Sensor Programmable (Dim)	E ^{1,2} Battery 0°C
SG1-30 Size 1, 30W	5K7 5000K, 70 CRI		277 277V	WH Textured White	SWP ^{1,2} SiteSync Pre-commission	EH ^{1,2} Battery w/ heater -20°
SG1-40 Size 1, 40W			UHV 347V-480V	GYS Smooth Gray	SWPM ^{1,2} SiteSync Pre-commission w/ Sensor	
SG2-50 Size 2, 50W				PS Smooth Plat. Silver	Specify MTG HT for SCO/SCP & SWPM	
SG2-80 Size 2, 80W				CC Custom Color	8F Up to 8'	
					20F Up to 20'	

Description	# of LEDs	Drive Current	System Watts	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 80 CRI)				
				Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
SG1-10	2	140mA	11	1349	122	1	0	0	1424	129	1	0	0	1003	91	1	0	0
SG1-20	2	250mA	21	2449	115	1	0	0	2310	110	1	0	0	2054	95	1	0	0





Wall Director® Medium



Housing

- Optical housing is a one-piece, die-cast low copper (<0.6%) aluminum alloy with integral heat sink. The housing rotates against mounting arm housing to provide -5° to 10° of adjustment with degree markers cast into the housing. At 0° adjustment, lens is totally concealed from view above horizontal with fixture mounted in the downward position.
- Mounting arm housing is one-piece die-cast, low copper (<0.6%) aluminum alloy with provisions for tilt mechanism. Mounting arm fastens to the mounting plate with keyhole slots freeing both hands for securing and wiring. One stainless steel socket-head screw on the tilt mechanism frees the optical housing to rotate for aiming. Tightening the screws locks the housing and lens frame together with sealing provided by a silicone gasket. For visual aiming, adjustment may be accomplished with the fixture on.
- Lens Frame is a one-piece, die-cast low copper (<0.6%) aluminum alloy with integral cooling fins to dissipate driver thermal.
- Luminaire housing shall be free of any visible heat fins, hardware or fasteners.
- Bracketry and hardware shall be stainless steel.

Specifications

- Luminaire shall be capable of operating at 100% brightness in a 40°C environment. Both driver and optical array shall have integral thermal protection that will dim the luminaire upon detection of temperatures in excess of 85°C.
- Luminaires not configured with a control system shall be provided with 0-10 purple and gray dimming leads.

Fixture	Mounting	Source	Wattage	Light Engine	Distribution	Voltage
WDM Wall Director Medium	D Down U¹ Up	48L 48 LEDs	55 55 Watts 65 65 Watts 85 85 Watts 105 105 Watts 130 130 Watts	3K7 3000K/70CRI 3K8 3000K/80CRI 4K7 4000K/70CRI 4K8 4000K/80CRI 5K7 5000K/70CRI	1 Type I 2 Type II 3 Type III 4W Type IV Wide 4F Type IV Forward WG² Wall Graze SP Spot/Column FTD² Forward Throw Diffuse WTD² Wide Throw Diffuse	UNV 120-277V 347 347V 480 480V

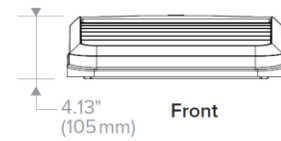
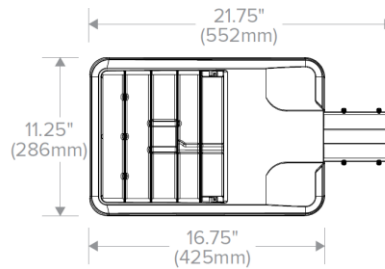
LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K					4000K					5000K				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
48L	10,000	88	Clear Lens	1	11194	1	0	1	127	11476	1	0	1	130	11607	1	0	1	132
				2	10601	2	0	2	120	10867	2	0	2	123	10991	2	0	2	125
				3	10779	1	0	2	122	11050	1	0	2	126	11177	1	0	2	127
				4F	10576	1	0	2	120	10842	1	0	2	123	10966	1	0	2	125
				4W	10285	2	0	2	117	10544	2	0	2	120	10665	2	0	2	121
			Diffuse Lens	SP	11870	5	0	1	135	12168	5	0	1	138	12308	5	0	1	140
				WG	10695	3	0	1	122	10964	3	0	1	125	11090	3	0	1	126
				FTD	9300	2	0	2	106	9534	2	0	2	108	9643	2	0	2	110
				WTD	10065	2	0	2	114	10318	2	0	2	117	10436	2	0	2	119

KIM LIGHTING

TYPES S4 & S4B & S4C



VIPER S



CONSTRUCTION

- Manufactured with die cast aluminum
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements
- IFS polyester powder-coat electrostatically applied and thermocured. IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish
- The finish meets the AAMA 2604 performance specification which includes passing a 3,000-hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds
- External hardware is corrosion resistant

OPTICS

- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one-piece optical system
- One-piece silicone gasket ensures a weatherproof seal around each individual optic
- One-piece optical cartridge system consisting of an LED engine, optics, gasket and stainless steel bezel

VPS	LED Engine	CCT/CRI ⁷	Distribution	Rotation	Voltage
Series					
VPS Viper Small	24L-55 55W, LED array 36L-65 65W, LED array 36L-80 80W, LED array 48L-110 110W, LED array 60L-136 136W, LED array	3K7 3000K, 70 CRI 4K7 4000K, 70 CRI 5K7 5000K, 70 CRI	FR Type 1/Front Row 2 Type 2 3 Type 3 4 Type 4 4W Type 4 Wide 5QM Type 5QM	Blank No rotation L Optic rotation left ⁵ R Optic rotation right ⁵	UNV 120-277V 347 347V 480 480V
Mounting	Color	Control Options			
A Rectangular Arm (formerly RA) for square or round pole MAF Mast Arm Fitter (formerly SF2) for 2 3/8" OD horizontal arm K Knuckle (formerly PK2) limit to 30° tilt or 2 3/8" OD horizontal arm or vertical tenon	BL Black Textured DB Dark Bronze Textured GYS Light Gray Smooth PS Platinum Silver Smooth	7PR 7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others) 7PR-SC 7-Pin Receptacle w/Shorting Cap 7PR-TL 7-Pin Receptacle w/Twist-Lock® photo control			

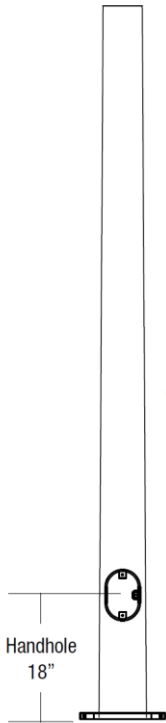
DELIVERED LUMENS

# of LEDs	DRIVE CURRENT (mA)	SYSTEM WATTS	DISTRIBUTION TYPE	5K (5000K nominal, 70 CRI)					4K (4000K nominal, 70 CRI)					3K (3000K nominal, 70 CRI)				
				LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G
24	700 mA	55W	FR	6357	118	1	0	1	6486	120	1	0	1	5804	107	1	0	1
			2	6132	114	1	0	1	6257	116	1	0	2	5599	104	1	0	1
			3	6015	111	1	0	2	6137	114	1	0	2	5492	102	1	0	2
			4	5921	110	1	0	2	6034	112	1	0	2	5400	100	1	0	2
			4W	5793	108	1	0	2	5909	110	1	0	2	5272	98	1	0	2

Type S4A: 3 Distribution; Type S4B: 4W Distribution; Type S4C: 4W Distribution



TYPES S4 & S4B & S4C



CONSTRUCTION

- SHAFT: One-piece tapered aluminum with round cross section, made of 6061-T6 shaft and 356-T6 cast aluminum base

GROUP 2

- ANCHOR BOLTS: Supplied with (4) galvanized anchor bolts with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling
- BOLT COVER: Four individual bolt covers provided
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HANDHOLE: 4" X 6" handhole opening with cover and grounding provision handhole 3" x 5" for 20' pole. The handhole is located 18" from the base of the pole.

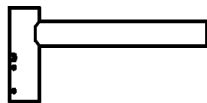
FINISH

- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Decorative finish coat available in six standard colors; Custom colors available, RAL number preferred

MOUNTING	DRILL PATTERN	FINISH	OPTIONS
1 Single arm mount	B1 Cruzer, "AM" arm	DB Dark Bronze Textured	GFI 20 Amp GFCI Receptacle and Cover
2 Two fixtures at 180°	B3 2 bolt (2-1/2" spacing Viper "A" arm)	BBT Basic Black Textured	EHH Extra Handhole
2L Two fixtures at 90°		BL Black Textured	C05 .5" Coupling
3T Three fixtures at 90°	S2 2 bolt (3-1/2" spacing Viper "AD" arm)	BZT Bronze Textured	C07 .75" Coupling
3Y Three fixtures at 120°		WH White Textured	C20 2" Coupling
4 Four fixtures at 90°		PS Platinum Silver Smooth	VM2 2nd mode vibration damper
TA Tenon (2.375" OD)		GT Graphite Textured	LAB Less Anchor Bolts
TB Tenon (2.875" OD)		GYS Gray Smooth	
TC Tenon (3.5" OD)		CC Custom Color	
OT Open Top (includes pole cap)			

Catalog Number	Height		Nominal Shaft Dimensions	Wall Thickness	Bolt Circle	Bolt Circle Range	Base Plate Size	Base Plate Shape	Anchor bolt size	Bolt Projection	Pole weight
	Feet	Meters									
Group 1											
RTA-B-10-40-A	10	3.0	4" x 3"	.125"	7"	-	7.25	Triangular	3/4x17x3"	3.25"	24
RTA-B-12-40-A	12	3.7	4" x 3"	.125"	7"	-	7.25	Triangular	3/4x17x3"	3.25"	27
RTA-B-14-40-A	14	4.3	4" x 3"	.125"	7"	-	7.25	Triangular	3/4x17x3"	3.25"	32
RTA-B-16-50-A	16	4.9	5" x 3"	.125"	8"	-	8.31	Triangular	3/4x17x3"	3.25"	35
RTA-B-18-50-A	18	5.5	5" x 3"	.125"	8"	-	8.31	Triangular	3/4x17x3"	3.25"	42

SPOKE TYPE BRACKETS



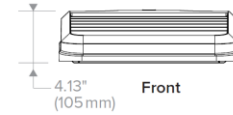
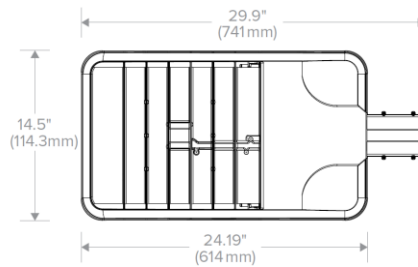
CONFIGURATION	LENGTH	POLE TENON SIZE	COLOR
1	8"	PT20 2" pipe tenon (2.38" O.D.)	DB Dark bronze textured
2-180	12"	PT25 2.5" pipe tenon (2.88" O.D.)	BL Black textured
2-90	18"	PT35 3.5" pipe tenon (4.0" O.D.)	WH White textured
3-120	24"		GR Gray textured
3-90	30"		PS Platinum silver smooth
4-90			GYS Light gray smooth

Type S4A & Type S4B: 18-Foot Pole with 6-Inches Exposed of Concrete Foundation Base
Type S4C: 16-Foot Pole with 30-Inches Exposed of Concrete Foundation Base





VIPER S



CONSTRUCTION

- Manufactured with die cast aluminum
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements
- IFS polyester powder-coat electrostatically applied and thermocured. IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish
- The finish meets the AAMA 2604 performance specification which includes passing a 3,000-hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds
- External hardware is corrosion resistant

OPTICS

- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one-piece optical system
- One-piece silicone gasket ensures a weatherproof seal around each individual optic
- One-piece optical cartridge system consisting of an LED engine, optics, gasket and stainless steel bezel

Series	LED Engine	CCT/CRI ⁷	Distribution	Rotation	Voltage
VPL Viper Large	64L-135 135W LED array 80L-180 180W LED array 80L-235 235W LED array 96L-220 220W LED array 96L-280 280W LED array 96L-315 315W LED array	3K7 3000K, 70 CRI 4K7 4000K, 70 CRI 5K7 5000K, 70 CRI	FR Type 1/Front Row 2 Type 2 3 Type 3 4 Type 4 4W Type 4 Wide 5QM Type 5QM	Blank No rotation L Optic rotation left ⁵ R Optic rotation right ⁵	UNV 120–277V 347 347V 480 480V

Mounting	Color	Control Options
A Rectangular Arm (formerly RA) for square or round pole MAF Mast Arm Fitter (formerly SF2) for 2 3/8" OD horizontal arm K Knuckle (formerly PK2) limit to 30° tilt or 2 3/8" OD horizontal arm or vertical tenon	BL Black Textured DB Dark Bronze Textured GY Light Gray Smooth PS Platinum Silver Smooth	7PR 7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others) 7PR-SC 7-Pin Receptacle w/Shorting Cap 7PR-TL 7-Pin Receptacle w/Twist-Lock® photo control

Type S4D: 96L 315

Type S4E: 96L 280

DELIVERED LUMENS

# of LEDs	DRIVE CURRENT (mA)	SYSTEM WATTS	DISTRIBUTION TYPE	5K (5000K nominal, 70 CRI)					4K (4000K nominal, 70 CRI)					3K (3000K nominal, 70 CRI)				
				LUMENS	LPW ¹	B	U	G	LUMENS	LPW ¹	B	U	G	LUMENS	LPW ¹	B	U	G
96	875 mA	280W	1A	33419	121	3	0	2	34453	125	3	0	2	29974	108	2	0	2
			2	31600	114	3	0	4	32577	118	3	0	4	28342	102	3	0	4
			3	31654	114	3	0	5	32633	118	3	0	5	28390	103	3	0	4
			4	30933	112	2	0	5	31889	115	2	0	5	27744	100	2	0	5
			4W	27708	99	3	0	5	28564	102	3	0	5	24280	87	2	0	5
			5QM	31657	114	5	0	3	32636	118	5	0	3	28393	103	4	0	2
			5QN	33058	119	5	0	1	34080	123	5	0	1	29650	101	5	0	1
96	1000mA	315W ²	1A	35666	113	3	0	2	36769	117	3	0	2	31989	101	2	0	2
			2	33725	107	3	0	4	34768	110	3	0	4	30248	96	3	0	4
			3	33782	107	3	0	5	34827	110	3	0	5	30299	96	3	0	4
			4	33012	105	2	0	5	34033	108	2	0	5	29609	94	2	0	5
			4W	29571	94	3	0	5	30485	97	3	0	5	25913	82	2	0	5
			5QM	33785	107	5	0	3	34830	110	5	0	3	30302	96	5	0	2



TYPES S4D & S4E



ROUND TAPERED ALUMINUM POLE

UPSWEEP STYLE

Catalog Number	Mounting Height		Arm Length		Shaft Size ⁴	Luminaire Characteristics			Bolt Circle ⁵ (inches)
	ft	m	ft	m		Wt. (lbs)	Wt (kg)	EPA ³	
UPSWEEP STYLE, SINGLE ARM									
RTA01	20	6.10	4	1.22	6 x 4.5 x 18'	75	34.0	1.6	9-10
RTA02	20	6.10	6	1.83	6 x 4.5 x 18'	71	32.2	1.6	9-10
RTA03	25	7.62	4	1.22	7 x 4.5 x 23'	75	34.0	1.6	10-11
RTA04	25	7.62	6	1.83	7 x 4.5 x 23'	71	32.2	1.6	10-11
RTA05	25	7.62	8	2.44	7 x 4.5 x 23'	52	23.6	1.6	10-11

Note: All brackets have 2" NPS slipfitters unless otherwise specified. Wall Thickness: .188 inch in every shaft, except where otherwise stated. Hand hole included in above catalog numbers. Center of hand hole 18" from ground. **All Anchor bolt sizes 1" x 36" x 4"**. All poles have natural aluminum satin finish.

1 Wall thickness: .219 inch

2 Wall thickness: .250 inch

3 Luminaire's effective projected area based on 80 m.p.h. wind velocity; For 90 and 100 m.p.h. wind velocity, consult factory; EPA is total sq. ft. for all luminaires

4 In. x In. x Ft. (bottom OD x Top OD x length)

5 Center-to-center diameter of bolt circle; Slotted for 1" adjustment

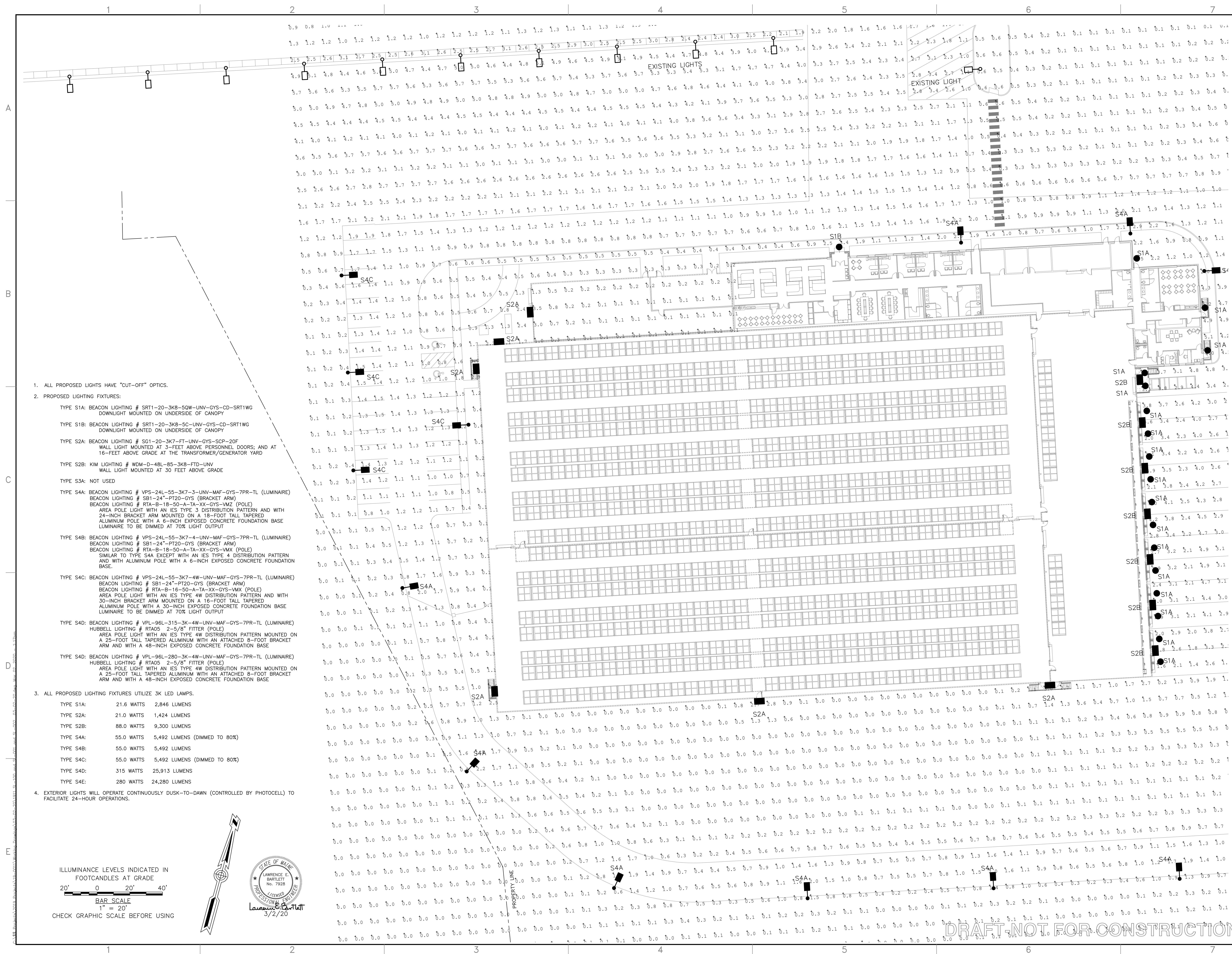
Type S4D & Type S4E: 25-Foot Pole with 48-Inches Exposed of Concrete Foundation Base

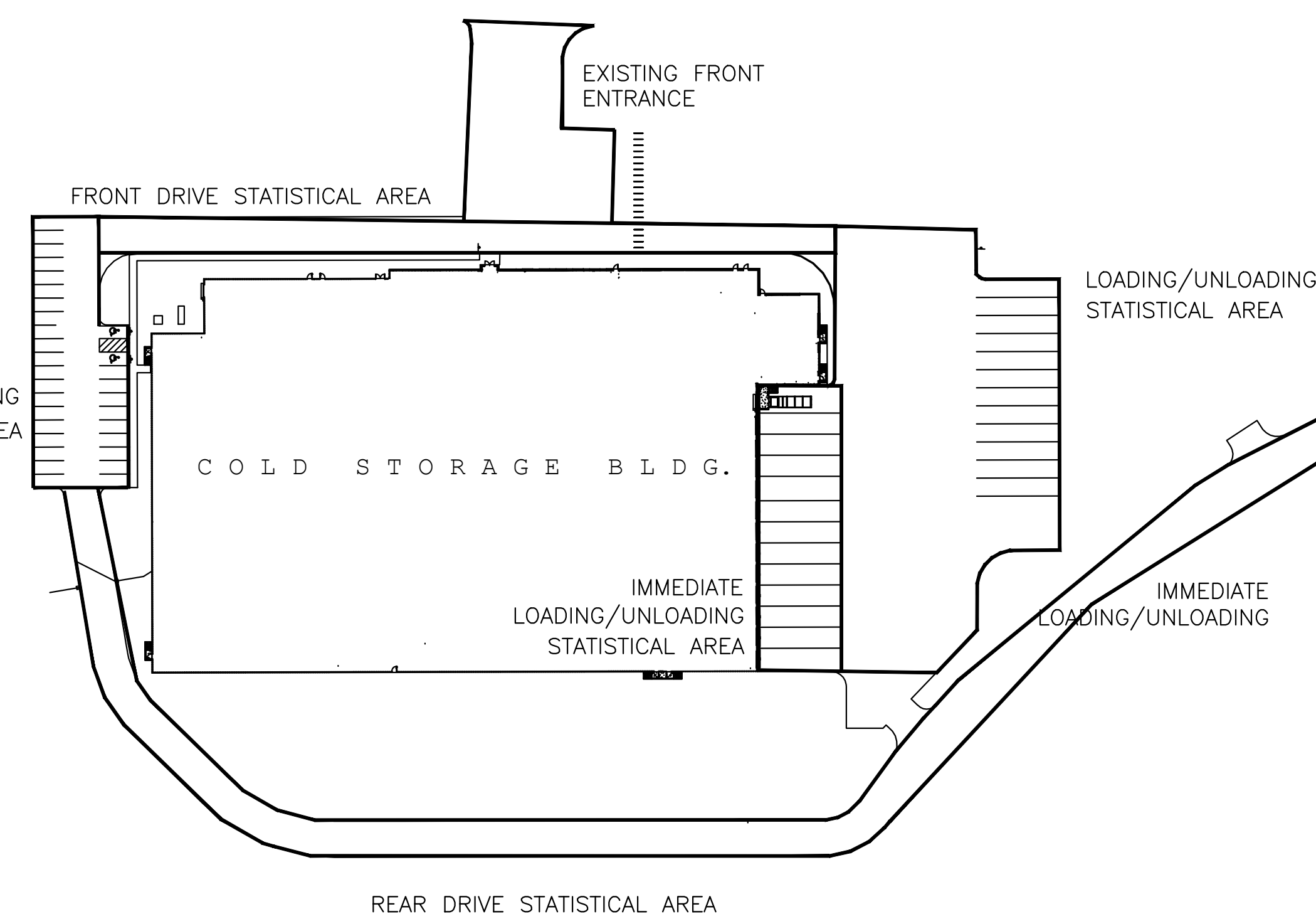
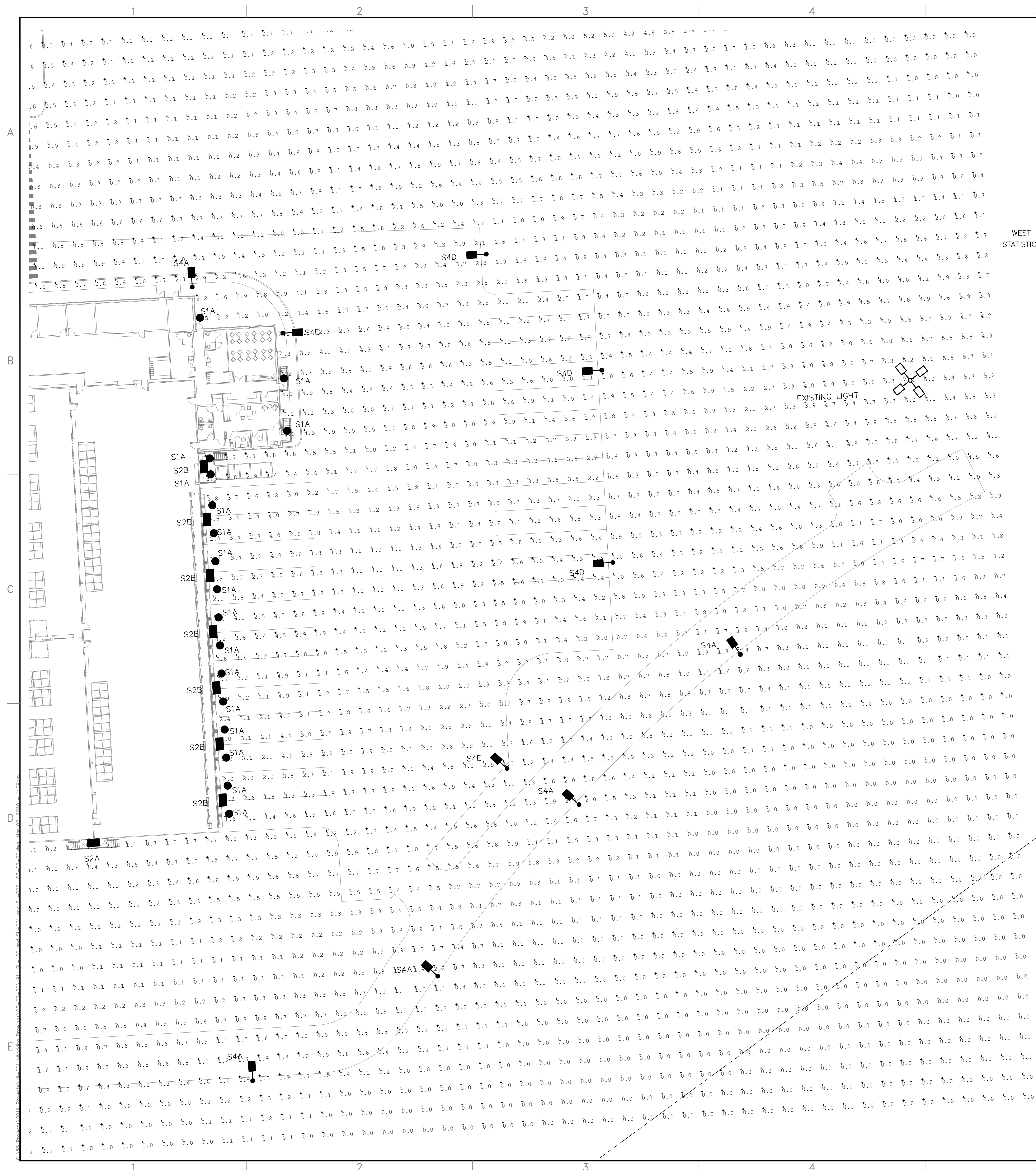


Outdoor Lighting

SITE LIGHTING ILLUMINANCE CALCULATION PLAN - PART 1

JOB NO.: 0232277.00
DATE: FEBRUARY 2020
SCALE: 1"=20'-0"
SHEET: # OF XX

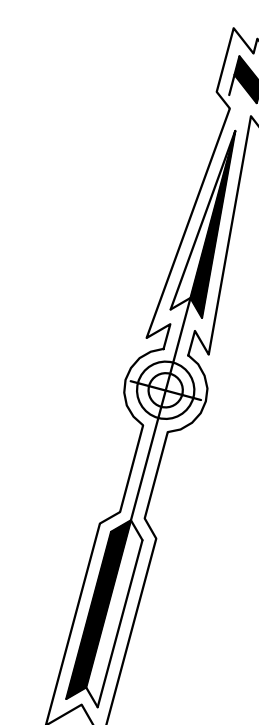




KEY PLAN

CALCULATED ILLUMINANCE RESULTS (FOOTCANDLES AT GRADE):

	AVE.	MAX.	MIN.	AVE-TO-MIN UNIFORMITY	MAX-TO-MIN UNIFORMITY
EXISTING FRONT ENTRANCE:	1.8 FC	3.3 FC	0.5 FC	3.7-TO-1	6.6-TO-1
FRONT DRIVE:	1.2 FC	2.2 FC	0.6 FC	1.9-TO-1	3.7-TO-1
WEST PARKING LOT:	1.2 FC	1.9 FC	0.7 FC	1.8-TO-1	2.7-TO-1
REAR DRIVE:	1.2 FC	5.0 FC	0.3 FC	4.1-TO-1	16.7-TO-1
GENERAL LOADING/UNLOADING AREA:	2.6 FC	4.9 FC	1.0 FC	2.6-TO-1	4.9-TO-1
IMMEDIATE LOADING DOCK AREA:	3.0 FC	4.9 FC	1.4 FC	2.2-TO-1	3.5-TO-1



ILLUMINANCE LEVELS INDICATED IN
FOOTCANDLES AT GRADE



BAR SCALE
1" = 20'

CHECK GRAPHIC SCALE BEFORE USING

DRAFT-NOT FOR CONSTRUCTION

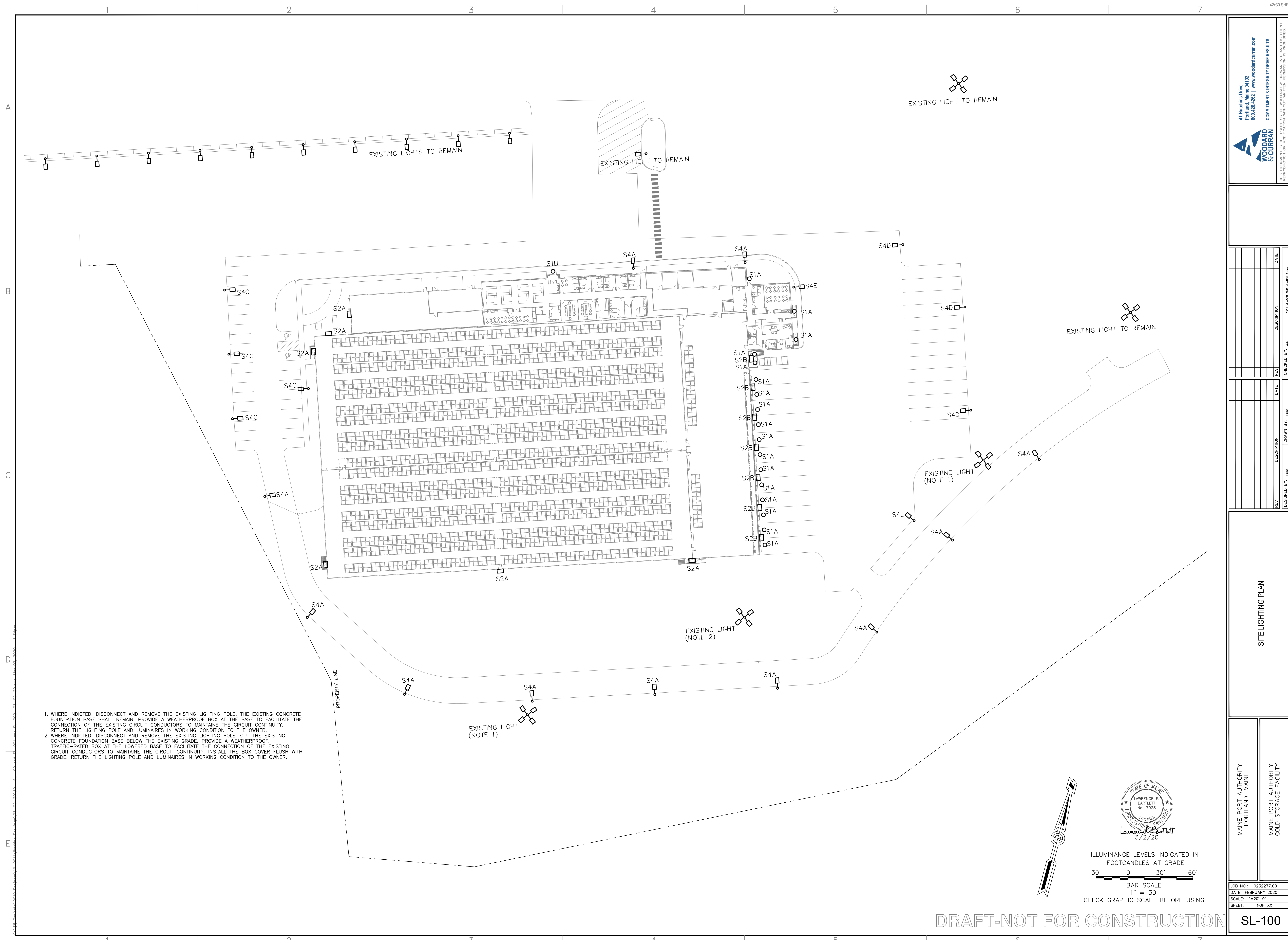
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SITE LIGHTING ILLUMINANCE CALCULATION PLAN - PART 2

MAINE PORT AUTHORITY
PORTLAND, MAINEMAINE PORT AUTHORITY
COLD STORAGE FACILITY

JOB NO.: 0232277.00
DATE: FEBRUARY 2020
SCALE: 1"=20'-0"
SHEET: # OF XX

SL-002



9. ASSESSMENT OF ZONING

The project is located within the City of Portland Waterfront Port Development Zone (WPDZ) and partially within the Shoreland Overlay Zone and is subject to the requirements of the City of Portland Code Ordinances, Chapter 14 Land use, Division 18.5, Division 26 and Division 26.5. The purpose of the WPDZ ordinance, as defined by the Ordinance, is to ensure the continued viability of the Port of Portland.

9.1 PERMITTED USES (14-319)

Cold storage facility, warehousing, and storage of goods which are awaiting shipment via cargo carriers are permitted uses within the WPD Zone.

9.2 DIMENSIONAL REQUIREMENTS (14-320.2)

The attached Zoning Assessment Table shows the project complies with conditional use dimensional standards specified in the City's Land Use Ordinance.

9.3 PERFORMANCE STANDARDS (14-320.3)

a) *Outdoor Storage of Materials*

There will be no outdoor storage of materials as part of the proposed construction, all storage will be within the Cold Storage building.

b) *Noise*

An acoustic study was performed by Tech Environmental for the proposed refrigeration facility and summarized in a report dated February 25, 2020 attached to Section 8. The results indicate noise associated with facility operations will not exceed regulated levels and will not negatively impact surrounding development in its urban setting. Table 3 of the letter report presents the results from the model and demonstrate that the project will comply with City of Portland Code of Ordinance Chapter 14 Sec. 14-320.3.

c) *Vibration*

There will be no change to the vibration generated on site as part of the proposed Cold Storage building construction. Vibration associated with the proposed development will not exceed regulated levels.

d) *Federal and State Environmental Regulations*

The proposed development will comply with applicable federal and state environmental statutes and regulations regarding emissions into the air.

e) *Discharge into Harbor Areas*

The proposed development will not discharge wastewater into harbor areas, the proposed Cold Storage building will tie into existing sanitary sewer infrastructure onsite, which ultimately connects into the City of Portland Collection System.

f) *Storage of Vehicles*

There will be no storage of vehicles onsite due to the proposed development.

g) *Landfill of Docking and Berthing Areas*

There will be no landfill of docking and berthing areas due to the proposed development.

h) *Off-Street Parking*

Adequate off-street parking has been provided as described in Section 8 of this Report.

i) *Off-street Loading*

Off-street loading has been provided in accordance with Division 21 of the City of Portland Land Use Ordinance as described in Section 8 of this Report.

j) *Shoreland and Flood Plain Management Regulations*

Portions of the proposed building, emergency access driveway, loading area and parking areas are located within two hundred fifty (250) feet horizontal distance of the normal high water line of Fore River as shown on the design drawings. Portions of the proposed development are also located within special flood hazard area A2 identified on the FEMA FIRM map attached to Section 2 of this Report. Compliance with Division 26, Shoreland Regulations, and Division 26.5, Flood Plain Management Regulations, is addressed in Sections 9.4 and 9.5 respectively.

k) *Lighting*

Site lighting has been provided in accordance with City standards. A Photometric Plan and cut sheets for proposed lighting fixtures are provided in Section 8 of this Report.

l) *Signs*

All signs proposed will be in conformance with Division 22 of the City of Portland Land Use Ordinance.

m) *Storage of Pollutants and Oily Wastes*

There will be no change in the storage of pollutants and oily wastes at the IMT. All storage will be in conformance with the City of Portland Land Use Ordinance.

n) *Compatibility of Nonmarine Uses with Marine Uses*

The proposed Cold Storage Building will not interfere with marine activities.

o) *Design and Visual Character*

All mechanical equipment will be visually screened to minimize negative visual impacts onsite, refer to attached drawing set for location of proposed mechanical equipment and screening. Design and visual character is discussed in greater detail in Section 2.4.2.

9.4 SHORELAND REGULATIONS (14-449)

a) *Principal and accessory structures*

The proposed building is not located within 75-feet of the normal high water line of the Fore River as shown on the design drawings. A portion of the proposed development is located within Flood Zone AE and FEMA Special Flood Hazard Zone A2, including a section of the proposed building. A City of Portland Flood Hazard Development Permit will be submitted to the City for review. The lowest floor elevation of the proposed building (14 feet) is located more than one foot above the 100-year flood elevation (10 feet).

b) *Piers, docks, wharves, bridges and other structures and uses extending over or below the normal high water line of a water body or within a wetland*

A new outlet will be installed to discharge stormwater into the Fore River; a separate Maine DEP NRPA Permit-by-Rule and Army Corps of Engineers Category II permit will be obtained for work below normal high water.

c) *Clearing or removal of vegetation*

The project is located within the Waterfront Port Development Zone; therefore, this section does not apply.

d) *Erosion and sedimentation control*

Adequate erosion controls will be provided for the proposed development as described in the Stormwater Management Plan attached to Section 8 of this Report.

e) *Soils*

Soil will be handled, managed and disposed per the required Soil Management Plan for the Site, as described in Section 13.1 of this Report.

f) *Water quality*

Adequate provisions have been made to treat stormwater runoff from the proposed development as described in the Stormwater Management Plan attached to Section 8 of this Report. No other discharges are proposed.

g) *Archaeological sites*

The project is not located within a Historic District and does not directly impact any historic landmarks.

h) *Installation of public utility service*

No public utilities are proposed. Private utility service connections are described in Section 13 of this Report.

i) *Essential services*

No essential services are proposed in the Shoreland Zone; this section does not apply.

j) *Roads and driveways*

There is no setback requirement for roads and driveways in the Waterfront Port Development Zone. Runoff from the proposed emergency access driveway will largely be captured and conveyed through the stormwater management system. Runoff for areas not captured by the drainage system will sheet flow across the roadway into the adjacent vegetated area; concentrated flows are not anticipated.

k) *Parking areas*

There is no setback requirement for parking areas in the Waterfront Port Development Zone; this section does not apply.

l) *Septic waste disposal*

No septic waste disposal is proposed; this section does not apply

m) *Stormwater runoff*

As demonstrated by the Stormwater Management Report attached to Section 8 of this Report, the proposed project has been designed to comply with the City of Portland Technical Manual. An Operations and Maintenance Plan has been developed for the project and is included in the Stormwater Management Report.

n) *Agriculture*

No agricultural operations are proposed; this section does not apply.

o) *General site plan features*

As demonstrated in the sections above, the proposed development is in conformance with the Shoreland Regulations.

9.5 FLOOD PLAIN MANAGEMENT REGULATIONS (14-450)

Portions of the proposed development are located within special flood hazard area A2 identified on the FEMA FIRM map attached to Section 2 of this Report. A Flood Hazard Area Development Permit will be submitted to the City under separate cover.

9.6 ATTACHMENTS

- Zoning Table



ZONING ANALYSIS Relevant Zone(s) WPDZ & Shoreland Overlay

All Projects:

	Required	Proposed
Lot Size	Min 5 Acres	17.9 acres
Area Per Dwelling Unit	N/A	N/A
Minimum Street Frontage	None	>1600'
Front Yard Minimum	N/A	151'
Front Yard Maximum	N/A	170'
Rear Yard	N/A	210'
Yard Right	N/A	44'
Yard Left	N/A	>500'
Side Street Setback	N/A	N/A
Step Back	N/A	N/A
Maximum Lot Coverage	50%	14%
Minimum Lot Coverage	N/A	N/A
Maximum Height	75'	73.83'
Open Space	N/A	N/A
Maximum Impervious Area	N/A	N/A
Pavement Setback	N/A	N/A
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces	TBD**	30
Loading Bays	N/A	12
Other 1 Maximum Building Length	300'	300'
Other 2		
Other 3		

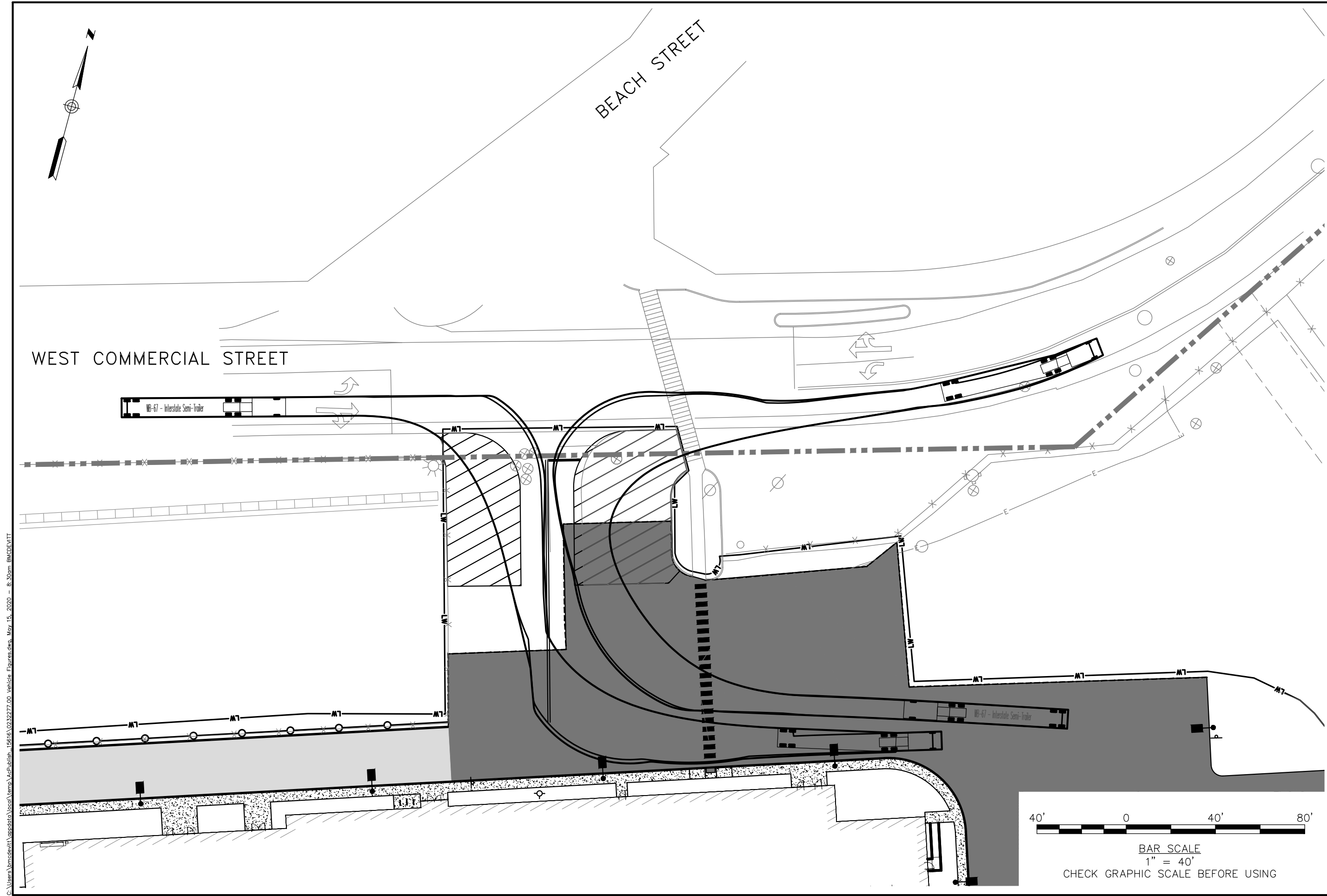
****Note:** Per Section 14-332.2(c) of the City's Ordinance, the Planning Board shall establish the parking requirements based upon parking analysis submitted by the Applicant.

Planned Residential Unit Developments (PRUD) Requirements**N/A**

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

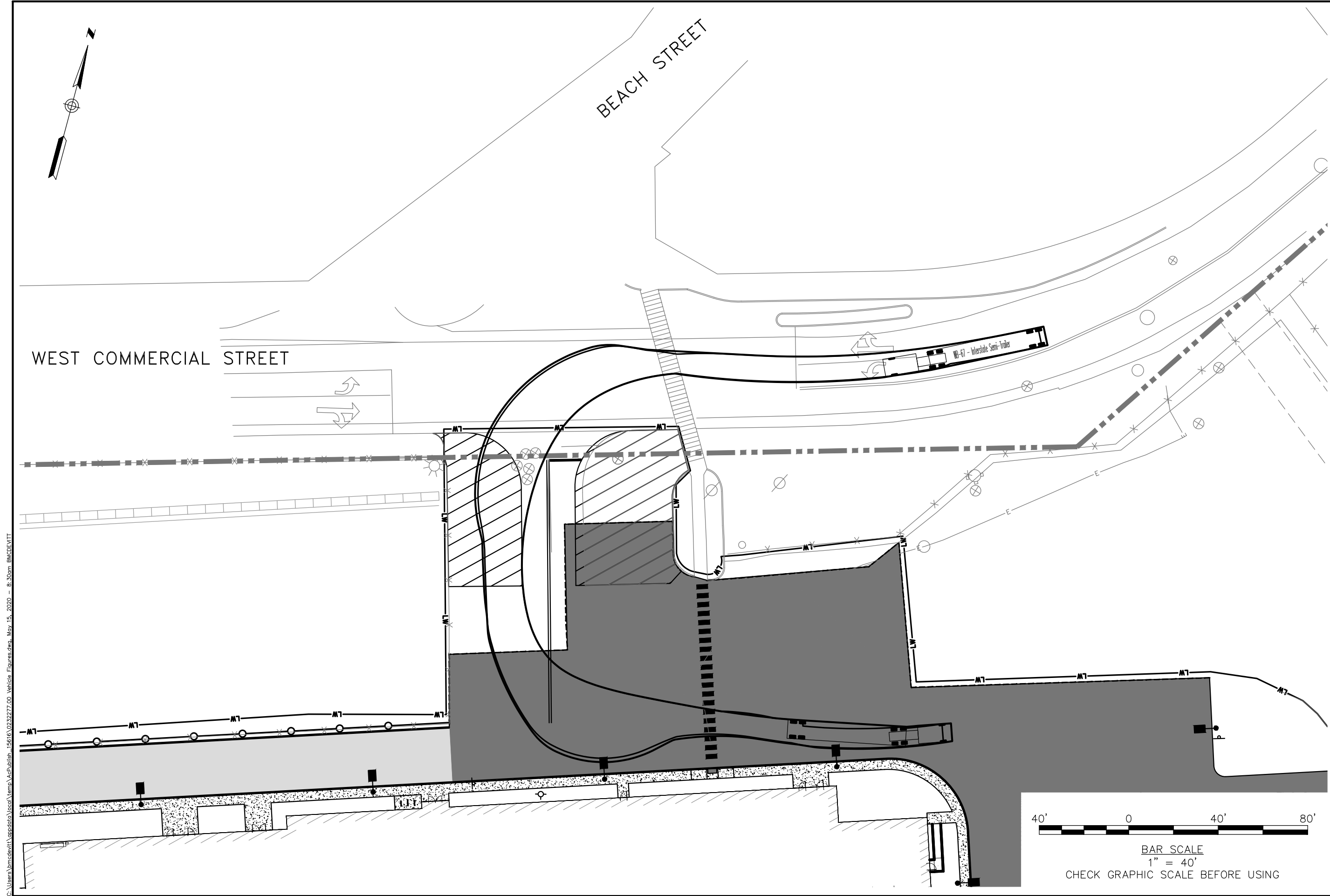
Affordable Housing Density Bonuses (if applicable)**N/A**

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			



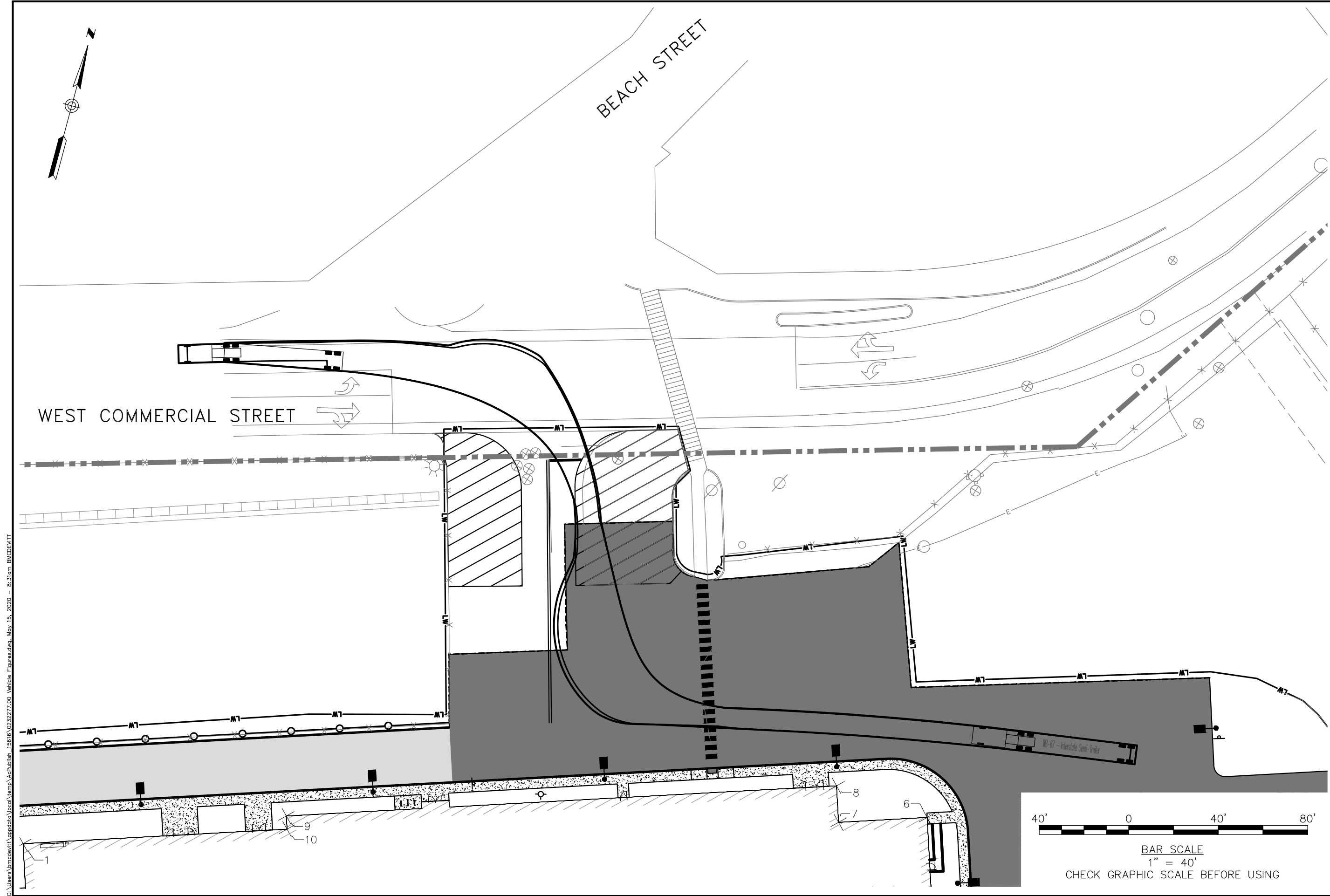
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VEHICLE TURNING - 1		WOODARD & CURRAN 41 Hutchins Drive Portland, Maine 04102 800.426.4262 www.woodardcurran.com COMMITMENT & INTEGRITY DRIVE RESULTS	
MAINE PORT AUTHORITY PORTLAND, MAINE		DESIGNED BY: AL	CHECKED BY: DBS
MAINE PORT AUTHORITY COLD STORAGE FACILITY		DRAWN BY: BCM	0232277.00_VEHICLE FIGU*.dwg
JOB NO: 0232277		DATE: MAY 2020	
SCALE: 1"=40'		VT - 1	



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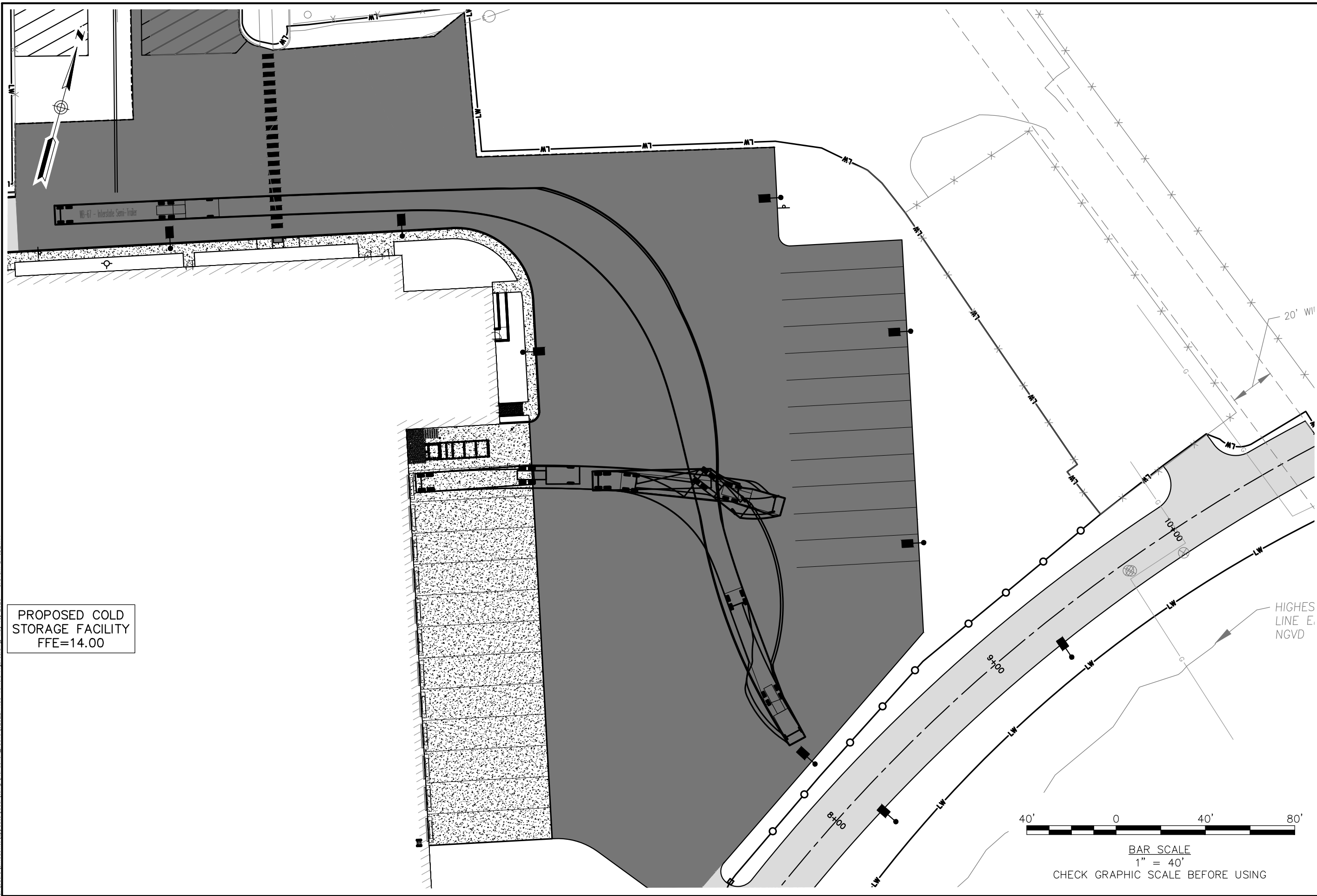
 41 Hutchins Drive Portland, Maine 04102 800.426.4262 www.woodardcurran.com COMMITMENT & INTEGRITY DRIVE RESULTS	
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MAINE PORT AUTHORITY COLD STORAGE FACILITY	
JOB NO: 0232277	
DATE: MAY 2020	
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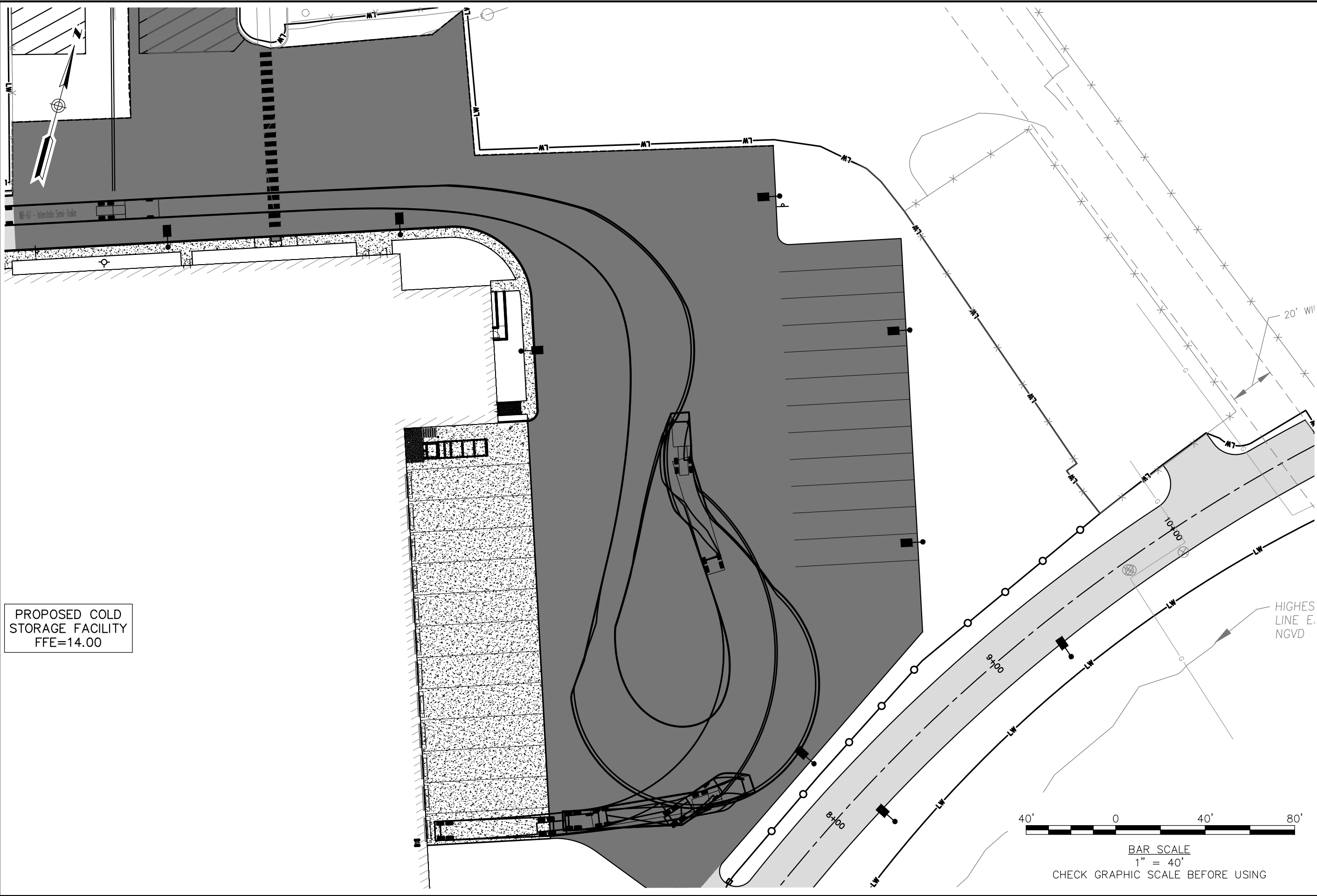
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MAINE PORT AUTHORITY COLD STORAGE FACILITY	
JOB NO: 0232277	
DATE: MAY 2020	
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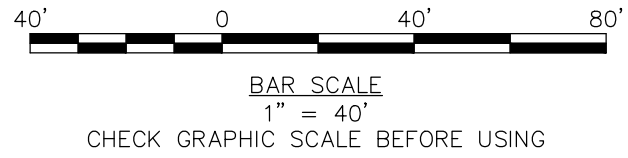


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JOB NO: 0232277		VT - 4	
DATE: MAY 2020			
SCALE: 1"=40'			

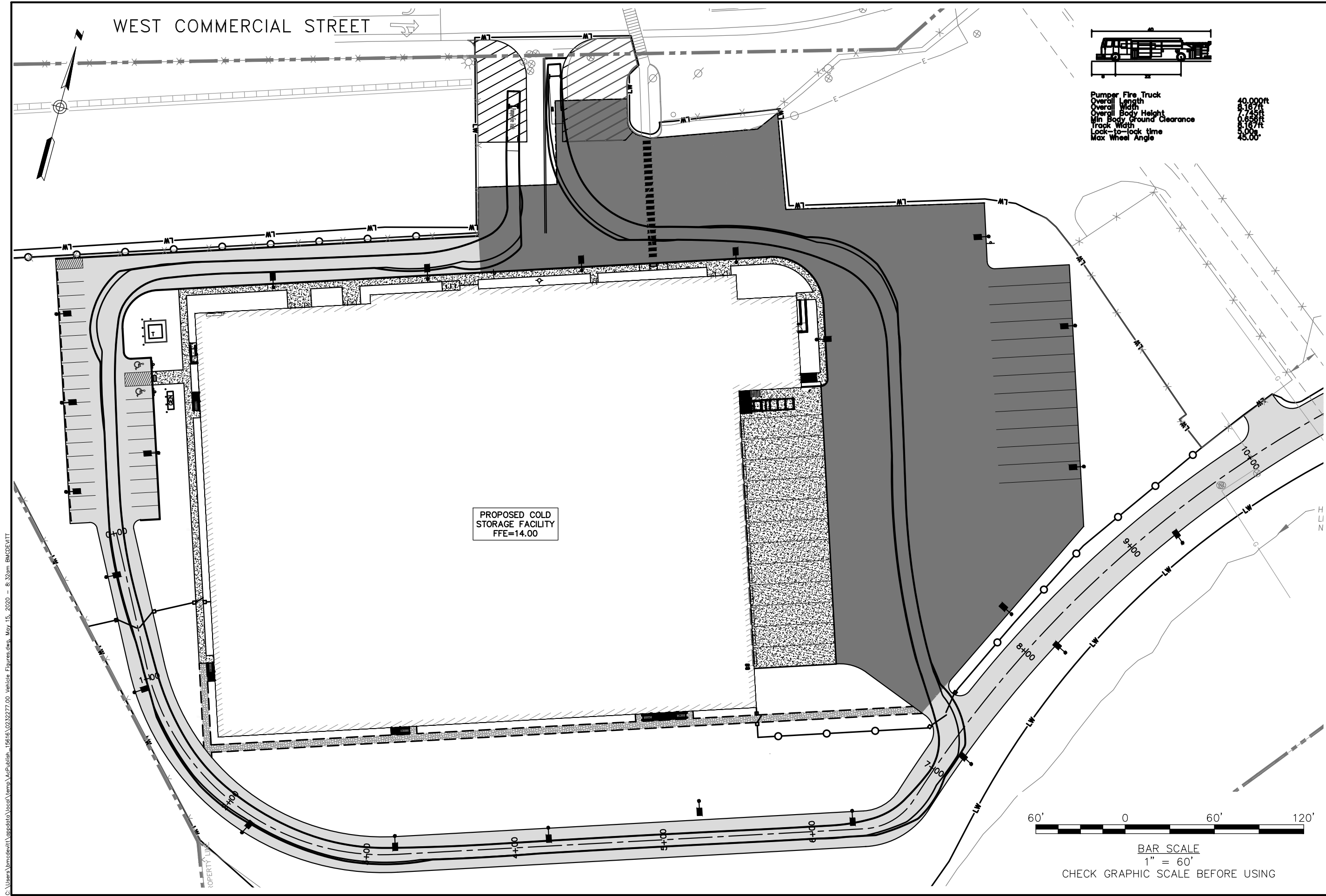
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PROPOSED COLD
STORAGE FACILITY
FFE=14.00



VEHICLE TURNING -- 5		 WOODARD & CURRAN 41 Hutchins Drive Portland, Maine 04102 800.426.4262 www.woodardcurran.com COMMITMENT & INTEGRITY DRIVE RESULTS	
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MAINE PORT AUTHORITY COLD STORAGE FACILITY		DRAWN BY: BCM	0232277.00 VEHICLE FIGU*.dwg
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 41 Hutchins Drive Portland, Maine 04102 800.426.4262 www.woodardcurran.com COMMITMENT & INTEGRITY DRIVE RESULTS		VEHICLE TURNING - 6	
		DESIGNED BY: AL	CHECKED BY: DBS
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MAINE PORT AUTHORITY COLD STORAGE FACILITY		JOB NO: 0232277 DATE: MAY 2020 SCALE: 1"=40'	
VT - 6			

10. CONSISTENCY WITH CITY COMPREHENSIVE PLAN

The proposed project is in alignment with the design guidelines specified in the City of Portland Comprehensive Plan, *Portland's Plan 2030*, developed in 2017. The proposed project will support local businesses and benefit marine economy by providing a refrigeration facility along the City's working waterfront. The proposed project satisfies two of the future strategies listed in the Waterfront Policy Guide. Excerpts from the Waterfront Policy Guide are provided below:

"Support private, federal, and State investment in the Western Waterfront" (Future Strategy 2).

"Promote development of cold storage warehousing to support a competitive Port of Portland by improving capacity to serve the cargo needs of the seafood, agriculture, food manufacturing, and beverage industries of northern New England" (Future Strategy 10).

The proposed development will benefit the City's working waterfront and local economy, and is consistent with the City's Comprehensive Plan.

R E P O R T

16-1314 S

April 20, 2020

Explorations and Geotechnical Engineering Services

Proposed Cold Storage Facility
Maine Port Authority
West Commercial Street
Portland, Maine

Prepared For:

Woodard & Curran
Attention: Jedd Steinglass, LSP
41 Hutchins Drive
Portland, Maine 04102

Prepared By:

S. W. Cole Engineering, Inc.
286 Portland Road
Gray, Maine 04039
T: 207-657-2866



- *Geotechnical Engineering*
- *Construction Materials Testing and Special Inspections*
- *GeoEnvironmental Services*
- *Test Boring Explorations*

www.swcole.com

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Appendix F	Laboratory Test Results

16-1314 S

April 20, 2020

Woodard & Curran
Attention: Jedd Steinglass, LSP
41 Hutchins Drive
Portland, Maine 04102

Subject: Explorations and Geotechnical Engineering Services
Proposed Cold Storage Facility
Maine Port Authority
West Commercial Street
Portland, Maine

Dear Jedd:

In accordance with our Contract Addendum, dated April 22, 2020, we have reviewed prior geotechnical subsurface explorations for the subject project. This report summarizes our findings and geotechnical recommendations and its contents are subject to the limitations set forth in Appendix A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to review prior geotechnical subsurface information at the site in order to develop geotechnical recommendations relative to foundations, earthwork and pavement associated with the proposed construction. Our scope of services included a review of prior explorations, a geotechnical analysis of the subsurface findings and preparation of this report.

1.2 Site and Proposed Construction

The site is the former Portland Gas Works located between West Commercial Street and the Fore River, west of the Casco Bay Bridge in Portland, Maine. We understand development plans call for construction of a new 120,000 SF cold storage facility with associated paved areas. We understand the building will be a dock-high, steel-framed

warehouse type structure with on-grade floor slabs and a sub-slab insulation and heating coil system to control freezing temperatures from penetrating the ground below the slab. We understand column loads may approach 175 kips with wall loads approaching 5 kips/foot. We understand floor slab loads approaching 700 psf are anticipated.

We understand a finished floor elevation (FFE) of 14.0 feet (project datum) is proposed. Based on proposed and existing grades, we understand a tapered raise in grade approaching 4 feet is required for the building and tapered lowering of grade approaching 1 foot is needed in proposed paved areas.

Proposed and existing site features are shown on the “Exploration Location Plan” attached in Appendix B.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Geotechnical explorations were generally completed in two phases; a 2017 preliminary phase, and a 2018 design phase, as summarized below:

2.1.1 Preliminary Phase Explorations

Six test borings (B-1001 through B-1005, including B-1001A) were made at the site in December 2017 by S. W. Cole Explorations, LLC as part of a preliminary phase study. These exploration locations were selected and established in the field by S.W.COLE. The approximate locations of these explorations are shown on the “Exploration Location Plan” attached in Appendix B. Logs of these explorations and a key to the notes and symbols used on the logs are attached in Appendix C. The elevations shown on these logs were estimated based on topographic information shown on the “Exploration Location Plan”.

2.1.2 Design Phase Explorations

Two test borings (B-2001 and B-2003) were made at the site from September 19 to September 21, 2018 by S. W. Cole Explorations, LLC. These exploration locations were selected and established in the field by S. W. Cole Engineering, Inc. (S.W.COLE). The approximate locations of these explorations are shown on the “Exploration Location Plan” attached in Appendix B. Logs of these explorations and a key to the notes and symbols used on these logs are attached in Appendix C. The elevations shown on

these logs were estimated based on topographic information shown on the “Exploration Location Plan”.

Twenty five Cone Penetrometer Tests (CPT18-2, CPT18-4 through CPT18-12 and CPT18-14) were made at the site from September 19 to September 21, 2018 by ConeTec, Inc. working under subcontract to S.W.COLE. The CPT exploration locations were selected and established in the field by S.W.COLE. The approximate CPT exploration locations are shown on the “Exploration Location Plan” attached in Appendix B. ConeTec’s CPT Data Report is attached in Appendix D.

2.2 Testing

2.2.1 Field Testing

The test borings were drilled using cased wash-boring techniques. The soils were sampled at 2 to 10 foot intervals using a split spoon sampler and Standard Penetration Testing (SPT) methods. Shelby tube sampling and Vane Shear Testing (VST) was performed in certain explorations where softer cohesive soils were encountered. SPT blow counts and VST results are shown on the logs.

2.2.2 Geophysical Testing

Hager-Richter Geoscience, Inc. (Hager-Richter) of Salem, New Hampshire, working under subcontract to S.W.COLE, performed geophysical testing at the site in December 2017 as part of a preliminary phase study. The purpose of the geophysical testing was to assess shear wave velocities of the subsurface profile beneath the site for use in determining seismic soil Site Class per IBC. Hager-Richter’s report is attached in Appendix E.

2.2.3 Laboratory Testing

Soil samples obtained from the explorations were returned to our laboratory for further classification and testing. Atterberg Limits, moisture and organic content test results are noted on the logs. The results of one-dimensional laboratory consolidation tests are attached in Appendix F.

3.0 SUBSURFACE CONDITIONS

3.1 Soil and Bedrock

The explorations were made in the area of the proposed building and encountered a soils profile generally consisting of 9 to 22 feet of uncontrolled granular fills with relic foundations and debris, overlying 0 to 17 feet of sandy silt with shells (bay mud), overlying 0 to 36 feet of glaciomarine clay, overlying medium dense marine sands at depths ranging from about 45 to 80 feet below the ground surface (bgs), overlying dense to very dense glacial till at depths ranging from about 75 to 140 feet bgs. Bedrock was not encountered within the depths explored.

The uncontrolled fills across the site contained coal tar and petroleum contamination extending down to the native Bay Mud stratum. At numerous exploration locations, below grade debris and relic foundations were encountered that resulted in terminating the exploration and making one or more additional attempts in the same or offset location.

Not all the strata were encountered at each exploration; refer to the attached logs for more detailed subsurface information.

3.2 Groundwater

The soils encountered at the test borings were wet to saturated from 5 to 10 feet bgs. Groundwater is likely tidally influenced from the level of the Fore River. Long term groundwater information is not available. It should be anticipated that groundwater levels will fluctuate, particularly in response to tides, periods of snowmelt and precipitation, as well as changes in site use.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction appears feasible from a geotechnical standpoint. The principle geotechnical considerations include:

- Conventional spread footing foundations and on-grade floor slabs do not appear feasible without significant ground improvement to mitigate post-construction settlement.
- The presence of below grade debris, relic foundations and contamination create challenges for ground improvement; consequently, we recommend the proposed building and floor slab be supported on steel H-piles driven into bearing strata of marine sands overlying dense to very dense glacial till.
- Settlement of the uncontrolled fills and glaciomarine clay will impose downdrag loading on piles. Below grade debris and relic foundations will cause pile locations to drift during pile installation. As necessary to overcome below grade obstructions, we recommend that pile locations be pre-drilled to a depth of about 25 feet and backfilled with bentonite clay.
- We understand the site soils and groundwater will be characterized by the project environmental consultant for environmental handling and disposal. .
- We understand a sub-slab venting system is planned; we understand the structural slab, sub-slab venting, insulation and heating systems will be designed by others.

4.2 Settlement Evaluation

The glaciomarine clay beneath the site is compressible under loading from the proposed site fills and building loads. We have estimated post-construction settlement due to consolidation of the glaciomarine clay considering:

- The findings at the test borings;
- The results of the one-dimensional consolidation testing;

- The existing and proposed site grading; and,
- The proposed structural loading

We estimate that post-construction settlement may approach 19-inches total with over 12 inches of differential settlement across the building pad. These settlement magnitudes greatly exceed tolerable limits for building construction; consequently, the foundation and floor slab will require piles or ground improvement that transfer loads through the compressive layer and into the stable bearing strata of marine sands and glacial till underlying the site.

4.3 Site and Subgrade Preparation

We recommend that site preparation begin with the construction of an erosion control system to protect adjacent drainage ways and areas outside the construction limits. Surficial organics, roots and topsoil should be completely removed from areas of proposed fill and construction. As much vegetation as possible should remain outside the construction areas to lessen the potential for erosion and site disturbance.

Building Pad and Foundations: We recommend pile caps and grade beams be underlain with at least 3 inches of Crushed Stone to provide a working mat and casting bed for foundation construction. Prior to installing the Crushed Stone venting layer below the structural floor system; as discussed herein, we recommend densifying soils with a vibratory roller compactor weighing at least 10 tons. Areas that become soft or continue to yield after densification should be removed and replaced with compacted Granular Borrow.

Paved Areas and Site Utilities: Uncontrolled fills encountered beneath proposed paved areas should be densified with a smooth-drum roller compactor weighing at least 10 tons. Areas that become soft or continue to yield after densification should be removed and replaced with compacted Granular Borrow. A woven geotextile fabric should be placed over pavement subgrades prior to installing Subbase Aggregate. We anticipate pipes and utility structures will be founded within existing uncontrolled fills that contain rubble and debris. We recommend the depth of customary bedding materials be at least 6 inches beneath pipes and 18 inches beneath structures.

4.4 Excavation and Dewatering

Excavation work will generally encounter uncontrolled fills with rubble debris and potentially coal tar and petroleum; sitework and utility subcontractors should be appropriately qualified for the expected environmental conditions as directed by the project environmental consultant. Earthwork and grading activities should ideally occur during drier, non-freezing weather of Spring, Summer and Fall.

Sumping and pumping dewatering techniques should be adequate to control groundwater in excavations above the groundwater table. Excavations below the groundwater table will require sheetpiling for soil support and groundwater cutoff. Controlling the water levels to at least one foot below planned excavation depths will help stabilize subgrades during construction.

Excavations must be properly shored or sloped in accordance with OSHA Regulations to prevent sloughing and caving of the sidewalls during construction. Care must be taken to preclude undermining adjacent structures, utilities and roadways. Design and planning of excavations, excavation support, and dewatering is the contractor's responsibility.

4.5 Foundations

Considering the subsurface findings and proposed construction, we recommend the proposed building and floor slabs be supported on steel H-piles fitted with cast driving tips, driven into bearing strata of marine sands overlying dense glacial till or refusal on bedrock. We offer the following H-pile sizes and allowable axial compressive capacities for design consideration:

RECOMMENDED H-PILE CAPACITIES		
50 ksi Steel H-pile Section	Allowable Geotechnical Compressive Pile Capacity (kips)	
	FS = 2.25	FS = 1.9
HP 12 x 74	150 kips	190 kips
HP 14 x 89	230 kips	280 kips
HP 14 x 102	280 kips	340 kips
HP 14 x 117	330 kips	400 kips
Notes: 1) Allowable Geotechnical Capacity reduced for downdrag and corrosion 2) FS of 2.25 requires PDA load testing; FS of 1.9 requires Static Load Test 3) HP 12 x 74 limited to Administration/Maintenance Wing		

Based on the subsurface findings, we anticipate pile lengths may range from 90 to 150 feet across the building pad. We recommend pile caps for columns be supported by at least two piles if laterally tied together by tie beams or a reinforced structural concrete slab and three piles if laterally isolated. Piles should be spaced a minimum center-to-center distance of at least 3 pile diameters, but no less than 30 inches.

Pile caps and grade beams exposed to freezing temperatures should be covered with at least 4.5 feet of soil for frost protection. Based on shear wave velocity testing by Hager-Richter, we recommend design consider a seismic soil Site Class D (IBC 2015).

To help reduce downdrag loading on piles and drift of pile location from debris, we recommend pre-drilling pile locations through the uncontrolled fill and relic foundations zone and backfilling with bentonite clay. The bentonite clay will also help to seal pile penetrations through glaciomarine clays.

Pile Submittal & Load Test: We recommend the contractor coordinate a test pile program including monitoring of several piles with a Pile Driving Analyzer (PDA) to determine pile and driving equipment compatibility as well as to define the “set” criteria and pile capacity. The test pile program should include PDA monitoring of the test piles during re-strikes in order to assess pile capacity. The pile driving contractor should submit a WEAP analysis and information relative to pile driving equipment prior to beginning driving. In order to use the higher pile capacities associated with a factor of safety of 1.9, the contractor will be required to perform a static load test to verify pile capacity.

S.W.COLE should be engaged to review the pile submittal and to observe pile driving, as well as pile load testing activities.

4.6 Floor Slabs

We recommend a pile supported structural floor slab system for the building and entrance slabs. The structural engineer or concrete consultant must design steel reinforcing and joint spacing appropriate to slab thickness and function. Sub-slab utilities should be suspended from the structural slab such that post-construction settlement of sub-slab fill will not affect the utilities.

Considering the coal tar and petroleum contaminants encountered beneath the proposed building, we recommend the floor slab system include a vapor retarder to mitigate moisture vapors and an HDPE liner overlying at least 8-inches of compacted Crushed Stone to provide a venting layer to collect soil gas and petroleum vapors from the coal tar and petroleum contaminants. Perforated pipes should be installed within the Crushed Stone venting layer to collect and discharge potential soil gas and petroleum vapors from beneath the building. General details of the structural floor slab system are illustrated on the “Foundation Detail Sketch” attached in Appendix B. The HDPE liner and subslab venting system should be design by a qualified Indoor Air Quality (IAQ) professional.

The vapor retarder must have a permeance that is less than the floor cover or surface treatment that is applied to the slab. The vapor retarder must have sufficient durability to withstand direct contact with sub-slab materials and construction activity. The vapor retarder material should be placed according to the manufacturer’s recommended method, including the taping and lapping of all joints and wall connections. The architect and/or flooring consultant should select the vapor retarder products compatible with flooring and adhesive materials.

The floor slab should be appropriately cured using moisture retention methods after casting. Typical floor slab curing methods should be used for at least 7 days. The architect or flooring consultant should assign curing methods consistent with current applicable American Concrete Institute (ACI) procedures with consideration of curing method compatibility to proposed surface treatments, flooring and adhesive materials.

We understand the structural slab, sub-slab insulation, heating and insulation system will be designed by others.

4.7 Entrance Slabs and Sidewalks

Entrance slabs should be pile-supported. Sidewalks adjacent to the building must be designed to reduce the effects of differential frost action between adjacent pavement, doorways, and entrances. We recommend that non-frost susceptible Structural Fill be provided to a depth of at least 4.5 feet below the top of entrance sidewalks. This thickness of Structural Fill should extend the full width of the entrance sidewalk and outward at least 4.5 feet, thereafter transitioning up to the bottom of the adjacent

sidewalk or pavement gravels at a 3H:1V or flatter slope. General details of this frost transition zone are shown on the “Foundation Detail Sketch” attached in Appendix B.

4.8 Fill, Backfill and Compaction

We recommend the following fill and backfill materials: recycled products must also be tested in accordance with applicable environmental regulations and approved by a qualified environmental consultant.

Common Borrow: Fill to raise grades in pile-supported building and structural slab areas should be non-organic compactable earth meeting the requirements of 2014 MaineDOT Standard Specification 703.18 Common Borrow.

Granular Borrow: Fill to raise grades in paved areas, as well as to repair soft areas, should be sand or silty sand meeting the requirements of 2014 MaineDOT Standard Specification 703.19 Granular Borrow.

Structural Fill: Backfill for foundations, material below exterior entrance slabs and truck dock slabs, as well as through the frost transition zone below entrance sidewalks, should be clean, non-frost susceptible sand and gravel meeting the gradation requirements for Structural Fill as given below:

Structural Fill	
Sieve Size	Percent Finer by Weight
4 inch	100
3 inch	90 to 100
¾ inch	25 to 90
No. 40	0 to 30
No. 200	0 to 6

Underdrain Sand: Sand used for underdrains should be clean, free-draining sand meeting the requirements of 2014 MaineDOT Standard Specification 703.22 Underdrain Backfill Material Type B.

Crushed Stone: Crushed Stone, used beneath foundations should be washed ¾-inch crushed stone meeting the requirements of 2014 MaineDOT Standard Specification 703.22 Underdrain Backfill Material Type C.

Reuse of Site Soils: The existing site fills may be reused as Common Borrow to raise grades in pile-supported building areas, provided they are at a compactable moisture content at the time of reuse and free of deleterious materials.

Placement and Compaction: Fill should be placed in horizontal lifts and compacted such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. Loose lift thicknesses for grading, fill and backfill activities should not exceed 12 inches. We recommend that fill and backfill in building and paved areas be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted with 3 to 5 passes of a vibratory plate compactor having a static weight of at least 500 pounds.

4.9 Paved Areas

We anticipate paved areas will be subjected primarily to heavy truck traffic. Considering the site soils, and proposed usage, we offer the following pavement section for consideration. Materials are referenced to 2014 Maine DOT Standard Specifications.

FLEXIBLE (HMA) PAVEMENT SECTION		
Layer	Thickness	
	Standard Duty (Cars)	Heavy Duty (Trucks)
MaineDOT 9.5 mm Hot Mix Asphalt	1.25"	1.25"
MaineDOT 12.5 mm Hot Mix Asphalt	2.75"	1.75"
MaineDOT 19.0 mm Hot Mix Asphalt	--	3"
MaineDOT 703.06 Aggregate Base Type A	3"	6"
MaineDOT 703.06 Aggregate Subbase Type D	12"	18"
Woven Geotextile Subgrade Fabric	Mirafi 600X	Mirafi HP270

RIGID (CONCRETE) PAVEMENT SECTION FOR TRUCK YARD	
Layer	Thickness
Concrete – 4,500 psi compressive, 500 psi flexural, 1½ inch aggregate, 6 ±1% air entrainment with doweled and caulked joints	8"
MaineDOT 703.06 Aggregate Subbase Base Type D	12"
Woven Geotextile Subgrade Fabric	Mirafi 600X
Modulus of Subgrade Reaction	100 psi/in (pci)

The base and subbase materials should be compacted to at least 95 percent of their maximum dry density as determined by ASTM D-1557. Hot mix asphalt pavement should be compacted to 92 to 97 percent of its theoretical maximum density as determined by ASTM D-2041. A tack coat should be used between successive lifts of bituminous pavement.

It should be understood that frost penetration can be on the order of 4.5 feet in this area. In the absence of full depth excavation of frost susceptible soils below paved areas and subsequent replacement with non-frost susceptible compacted fill, frost penetration into the subgrade will occur and some heaving and distress of pavement must be anticipated.

4.10 Weather Considerations

Construction activity should be limited during wet and freezing weather and the site soils may require drying or thawing before construction activities may continue. The contractor should anticipate the need for water to temper fills in order to facilitate compaction during dry weather. If construction takes place during cold weather, subgrades, foundations and floor slabs must be protected during freezing conditions. Concrete and fill must not be placed on frozen soil; and once placed, the concrete and soil beneath the structure must be protected from freezing.

4.11 Design Review and Construction Testing

S.W.COLE should be retained to review the construction documents prior to bidding to determine that our earthwork, foundation and pavement recommendations have been properly interpreted and implemented.

A quality assurance testing and inspections program should be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE is available to observe earthwork activities, the installation of piles, the preparation of foundation casting surfaces and pavement subgrades, as well as to provide testing and IBC Special Inspection services for soils, concrete, steel, spray-applied fireproofing, structural masonry and asphalt construction materials.

5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you during the construction phase of the project.

Sincerely,

S. W. Cole Engineering, Inc.

Timothy J. Boyce, P.E.
Senior Geotechnical Engineer

JAD/TJB:tjb/pfk

DRAFT

APPENDIX A - Limitations

This report has been prepared for the exclusive use of Woodard & Curran for specific application to the proposed Cold Storage Warehouse at the Maine Port Authority on West Commercial Street in Portland, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct our services in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S.W.COLE's scope of services has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE.

APPENDIX B

Figures

WEST COMMERCIAL STREET
U.S. ROUTE 1A

PAVED - PUBLIC - VARIABLE WIDTH

BEACH ST.

FORE RIVER

- LEGEND:**
- APPROXIMATE BORING LOCATION
 - APPROXIMATE CONE PENETROMETER LOCATION
 - APPROXIMATE GEOPHYSICAL TEST LINE LOCATION

- NOTES:**
- EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=30' SCALE PLAN OF THE SITE ENTITLED "GRADING, DRAINAGE AND EROSION CONTROL PLAN," PREPARED BY WOODARD & CURRAN, DATED FEBRUARY 2020.
 - BORINGS B-1001 THROUGH B-1005 WERE PERFORMED UNDER THE DIRECTION OF S. W. COLE ENGINEERING, INC. (S.W. COLE) IN DECEMBER 2017 AND LOCATED IN THE FIELD BY MEASUREMENTS FROM EXISTING SITE FEATURES.
 - BORINGS B-2001 THROUGH B-2003 AND CPT18-01 THROUGH CPT18-014 WERE PERFORMED UNDER THE DIRECTION OF S.W. COLE IN SEPTEMBER 2018 AND LOCATED IN THE FIELD BY GPS SURVEY USING A MAPPING GRADE TRIMBLE GPS RECEIVER.
 - BORINGS B-106 (H&A) AND B-107 (H&A) WERE PERFORMED UNDER THE DIRECTION OF HALEY & ALDRICH IN (DATE).
 - THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
 - THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.

0 30 60 Feet			
2	03/06/2020	DRAFT II GEOTECHNICAL REPORT	CEM
1	10/19/2018	DRAFT GEOTECHNICAL REPORT	CEM
0	01/30/2018	PRELIMINARY GEOTECHNICAL DATA	CEM
NO.	DATE	DESCRIPTION	BY
S.W. COLE ENGINEERING, INC.			
WOODARD & CURRAN EXPLORATION LOCATION PLAN PROPOSED LOW TEMP WAREHOUSE 460 COMMERCIAL STREET PORTLAND, MAINE			
Job No.:	16-1314	Scale:	1" = 30'
Date:	01/05/2018	Sheet:	1

LAND NOW OR FORMERLY
OWNED BY
NEW YARD, LLC
30887/247

PROPOSED COLD
STORAGE FACILITY
FFE = 14.00

COLD STORAGE COMPARTMENT A

TRANS. ON CONC. PAD

S2 LOW HAZARD OCCUPANCY

COLD STORAGE COMPARTMENT B

CONC. REMAINS

GRAVEL

PAVEMENT REMAINS

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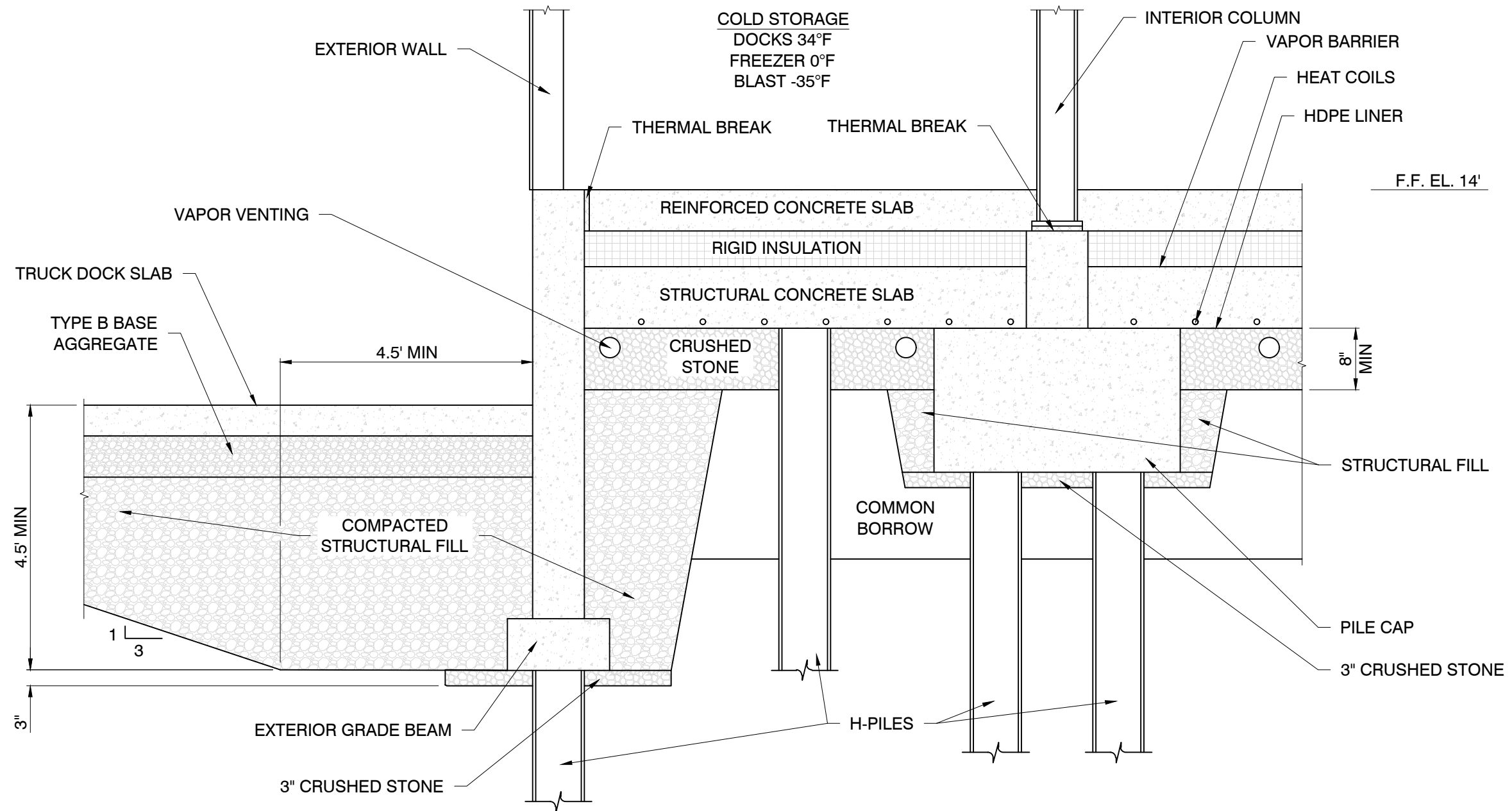
PAVEMENT

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WOODARD & CURRAN
FOUNDATION DETAIL SKETCH
 PROPOSED COLD STORAGE WAREHOUSE
 460 COMMERCIAL STREET
 PORTLAND, MAINE

Job No.:	16-1314	Scale:	Not to Scale
Date :	04/20/2020	Sheet:	2

APPENDIX C

Exploration Logs and Key



BORING LOG

CLIENT: Colby Co. Engineering
PROJECT: Proposed IMT Cold Storage
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B2001
SHEET: 1 of 3
PROJECT NO. 16-1314.1
DATE START: 9/19/2018
DATE FINISH: 9/21/2018

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 11' +/- TOTAL DEPTH (FT): 131.0 LOGGED BY: Justin DuBois
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 140 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.75 HAMMER DROP (inch): 30 / 30
WATER LEVEL DEPTHS (ft): 7 ft 9/19/2018
GENERAL NOTES: 20 feet of casing broke off during removal, abandoned in place.

KEY TO NOTES AND SYMBOLS: Water Level
At time of Drilling
At Completion of Drilling
After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10									Loose, brown to black SAND with gravel and silt (Fill), strong naphthalene odor and sheen.		Backfilled with cuttings (medium to coarse sand) from 15' to surface
5											
5											
10			1D	X	10-12	24/8	2-1-3-4				
0											
15											
-5											Back filled with Bentonite from 40' to 15'
20			2D	X	20-22	24/12	1-1:12"-3		20.0 Very loose, dark gray, sandy SILT with shells and organics (Bay Mud), slight naphthalene odor.		
-10											
25											
-15											
30			3D	X	30-32	24/24	WOH:21"-1		30.0 Very soft, gray, silty CLAY some fine sand, few shell fragments.		
-20											
35											
-25											

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: B2001



BORING LOG

CLIENT: Colby Co. Engineering
 PROJECT: Proposed IMT Cold Storage
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B2001**
 SHEET: 2 of 3
 PROJECT NO. 16-1314.1
 DATE START: 9/19/2018
 DATE FINISH: 9/21/2018

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
-30			4D	X	40-42	24/24	WOR:6" WOH:12" 1				Boring caved overnight to 40'
45											
-35											
50			5D	X	50-52	24/24	WOH:18" 2				
-40											
55											Very soft, gray, sandy silty CLAY.
-45											
60			6D	X	60-62	24/24	WOR:6" WOH:12" 1				
-50											
65											
-55											Medium dense to dense, gray, medium SAND some silt, coarse sand layers.
70			7D	X	70-72	24/13	4-6-10- 16				
-60											
75											
-65											
80			8D	X	80-82	24/24	12-18- 19-25				
-70											
85											
-75											
90			9D	X	90-92	24/24	12-14- 13-16				
-80											

(Continued Next Page)

BORING NO.: **B2001**



BORING LOG

CLIENT: Colby Co. Engineering
 PROJECT: Proposed IMT Cold Storage
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B2001**
 SHEET: 3 of 3
 PROJECT NO. 16-1314.1
 DATE START: 9/19/2018
 DATE FINISH: 9/21/2018

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
95											
-85											
100			10D	X	100-102	24/24	9-10-13-20				
-90											
105											
-95											
110											
-100											
115											
-105											
120											
-110									120.0		
125											
-115									Advanced with 3" Roller cone bit.		
130											
-120											

Auger Refusal at 131.0 feet
 Hard drilling and drill bit chatter, presumed
 Glacial Till.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B2001**



BORING LOG

BORING NO.: **B2003**
SHEET: 1 of 3
PROJECT NO. 16-1314.1
DATE START: 9/18/2018
DATE FINISH: 9/19/2018

CLIENT: Colby Co. Engineering
PROJECT: Proposed IMT Cold Storage
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 10' +/- TOTAL DEPTH (FT): 122.0 LOGGED BY: Justin DuBois
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 140 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.75 HAMMER DROP (inch): 30 / 30
WATER LEVEL DEPTHS (ft):
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level
▽ At time of Drilling D = Split Spoon Sample Pen. = Penetration Length WOR = Weight of Rods
▽ At Completion of Drilling U = Thin Walled Tube Sample Rec. = Recovery Length WOH = Weight of Hammer
▽ After Drilling R = Rock Core Sample bpf = Blows per Foot RQD = Rock Quality Designation S_v = Field Vane Shear Strength, kips/sq.ft.
V = Field Vane Shear mpf = Minute per Foot PID = Photoionization Detector q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
5	5								Augered through loose, SAND with gravel and cobbles (Fill), naphthalene odor and sheen.		Backfilled with cuttings (medium sand) from 15' to surface.
0	10		1D		10-12	24/0	1-1-1-3				
-5	15										Backfilled with Bentonite from 41' to 15'
-10	20		2D		20-22	24/3	2-1:12"-1		20.0 Very loose, dark gray, sandy SILT with shells and organics (Bay Mud), slight naphthalene odor.		
-15	25										
-20	30		3D		30-32	24/24	WOH:24"		30.0 Very soft, gray, silty CLAY some fine sand.		
-25	35										

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B2003**



BORING LOG

CLIENT: Colby Co. Engineering
 PROJECT: Proposed IMT Cold Storage
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B2003**
 SHEET: 2 of 3
 PROJECT NO. 16-1314.1
 DATE START: 9/18/2018
 DATE FINISH: 9/19/2018

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
			4D	X	40-42	24/24	WOH:24"				Backfilled with gravel to 41'
-35	45										
-40	50		5D	X	50-52	24/24	WOH:12" 2-3		Increased shell fragments and wood.		
-45	55								55.0 Soft, gray, sandy silty CLAY.		
-50	60		6D	X	60-62	24/24	3-2-2-3				
-55	65										Boring caved overnight to 67'
-60	70		7D	X	70-72	24/12	5-4-4-8				
-65	75										
-70	80		8D	X	80-82	24/8	16-26- 24-29		80.0 Dense to very dense, gray, medium SAND some silt, coarse sand layers.		
-75	85										
-80	90		9D	X	90-92	24/12	20-30- 29-28				

(Continued Next Page)

BORING NO.: **B2003**



BORING LOG

CLIENT: Colby Co. Engineering
 PROJECT: Proposed IMT Cold Storage
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B2003**
 SHEET: 3 of 3
 PROJECT NO. 16-1314.1
 DATE START: 9/18/2018
 DATE FINISH: 9/19/2018

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
-85	95										
-90	100		10D	X	100-102	24/12	21-28-41-54		Drill bit chatter; coarse sand or gravel layer.		
-95	105										
-100	110		11D	X	110-112	24/10	11-13-22-25				
-105	115										
-110	120		12D	X	120-122	24/12	18-19-17-22				

Bottom of Exploration at 122.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B2003**



BORING LOG

CLIENT: Woodard & Curran
PROJECT: Proposed IMT West Cold Storage Facility
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-1001
SHEET: 1 of 1
PROJECT NO. 16-1314
DATE START: 12/20/2017
DATE FINISH: 12/20/2017

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 14' +/- TOTAL DEPTH (FT): 25.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 300 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): 4 ft 12/20/2017 Free water at 4'
GENERAL NOTES: Backfilled borehole with bentonite and drill cuttings.

KEY TO NOTES AND SYMBOLS: Water Level
At time of Drilling
At Completion of Drilling
After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
			1D		0.5-2.5	24/18	13-9-7-8		Medium dense, brown silty gravelly SAND (FILL)		
			2D		5-7	24/12	5-4-6-4		Medium dense to loose, black gravel, some silt, some sand with wood (FILL) -petroleum odor		
			3D		10-12	24/12	4-3-4-3		-petroleum odor and sheen below 10'		
			4D		15-17	24/10	3-3-4-3		FILL and coal tar		
			5D		20-21.8	21/5	8-7-6-50/3"				
									Concrete		
									Coal tar in casing prevented further drilling		

Bottom of Exploration at 25.0 feet
Abandoned hole at 25', excessive coal tar

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-1001



BORING LOG

BORING NO.: **B-1001A**

SHEET: 1 of 2

PROJECT NO. 16-1314

DATE START: 12/20/2017

DATE FINISH: 12/20/2017

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 14' +/- TOTAL DEPTH (FT): 52.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 300 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): ∇ 5 ft 12/20/2017 Soils saturated below 5'
GENERAL NOTES: Moved boring 25' +/- west of B-1001. Backfilled borehole with bentonite and drill cuttings.

KEY TO NOTES AND SYMBOLS: ∇ Water Level ∇ At time of Drilling ∇ At Completion of Drilling ∇ After Drilling
D = Split Spoon Sample U = Thin Walled Tube Sample R = Rock Core Sample V = Field Vane Shear
Pen. = Penetration Length Rec. = Recovery Length bpf = Blows per Foot mpf = Minute per Foot
WOR = Weight of Rods WOH = Weight of Hammer RQD = Rock Quality Designation PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft. q_u = Unconfined Compressive Strength, kips/sq.ft. N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10	5								Brown-black gravelly silty SAND with brick (FILL)	∇	
5	10										
0	15		1D	X	15-17	24/12	9-6-4-7		-petroleum odor and sheen		
-5	20		2D	X	20-22	24/22	WOH FOR 12"-2-3 w =31.2 % O =2.0%		19.0 Very loose to loose, gray SAND and silt, some clay with shells (Bay Mud)		
-10	25		3D	X	25-27	24/20	2-4-3-3		24.0 Loose to medium dense, gray SAND and silt with frequent silty clay layers		
-15	30		4D	X	30-32	24/18	3-5-5-6 w =24.5 %				
-20	35		5D	X	35-37	24/2	4-3-10-9				
-25											

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1001A**



BORING LOG

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1001A**

SHEET: 2 of 2

PROJECT NO. 16-1314

DATE START: 12/20/2017

DATE FINISH: 12/20/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
			6D	X	40-42	24/24	4-3-4-6		Loose to medium dense, gray silty SAND with clay layers		
-30	45		7D	X	45-47	24/24	WOH FOR 12"-5-5	w =19.4 %			
-35	50		8D	X	50-52	24/18	7-11- 11-12	w =21.2 %	49.0 Medium dense, brown silty SAND with clay layers		

52.0 Bottom of Exploration at 52.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1001A**



BORING LOG

BORING NO.: **B-1002**
SHEET: 1 of 2
PROJECT NO. 16-1314
DATE START: 12/27/2017
DATE FINISH: 12/27/2017

CLIENT: Woodard & Curran
PROJECT: Proposed IMT West Cold Storage Facility
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 12' +/- TOTAL DEPTH (FT): 52.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted Diedrich D-50 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 300 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.79 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): 7 ft 12/27/2017 Soils saturated below 7'
GENERAL NOTES: Backfilled borehole with bentonite to 16' below ground surface.

KEY TO NOTES AND SYMBOLS: Water Level
▽ At time of Drilling
▽ At Completion of Drilling
▽ After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10			1D	×	3-5	24/126	4-4-3-2		Concrete		
	5		2D	×	5-7	24/15	4-4-4-4		1.1 Loose, brown silty SAND (FILL)		
5									6.5 Loose, black silty SAND (FILL) -petroleum odor	▽	
10			3D	×	10-12	24/14	4-7-9-6		9.0 Medium dense, gray gravelly SAND, some silt -petroleum odor		
0									14.0 Very loose, gray silty SAND with organics -petroleum odor and sheen		
15			4D	×	15-17	24/11	4-1-1-1	w =28.8 % O =1.9%	19.0 Medium dense, gray silty gravelly SAND		
-5									24.0 Medium dense to loose, light brown silty SAND with silty clay layers		
20			5D	×	20-22	24/14	2-5-7- 13				
-10											
25			6D	×	25-27	24/14	3-3-9-7	w =25 %			
-15											
30			7D	×	30-32	24/12	4-8-8-7				
-20											
35			8D	×	35-37	24/20	5-4-6-6	w =22.4 %			
-25											

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1002**



BORING LOG

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1002**

SHEET: 2 of 2

PROJECT NO. 16-1314

DATE START: 12/27/2017

DATE FINISH: 12/27/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
-30	45		9D	X	40-42	24/18	6-4-2-5		40.0 Loose, gray silty SAND, some gravel with silty clay layers		
-35									45.0 Medium dense, gray SAND and silt		
-50			10D	X	50-52	24/14	4-8-18-19	w =23.1 %			
-40									52.0 Bottom of Exploration at 52.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1002**



BORING LOG

BORING NO.: B-1003**SHEET:** 1 of 2**PROJECT NO.:** 16-1314**DATE START:** 12/21/2017**DATE FINISH:** 12/21/2017**CLIENT:** Woodard & Curran**PROJECT:** Proposed IMT West Cold Storage Facility**LOCATION:** West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 12' +/- **TOTAL DEPTH (FT):** 82.0 **LOGGED BY:** Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 300 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ∇ 4.5 ft 12/21/2017 Free water at 4.5'

GENERAL NOTES: Moved borehole 8-10' west after drilling through concrete at 4-5' and void from 5-10'. Backfilled borehole with bentonite to 16' below ground surface.

KEY TO NOTES AND SYMBOLS: ∇ Water Level ∇ At time of Drilling ∇ At Completion of Drilling ∇ After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10									Medium dense, black-brown silty gravelly SAND with brick (FILL) -Petroleum odor at 5-7'		
5			1D		5-7	24/19	5-12-8-3				
5											
10			2D		10-11.5	18/7	1-1-1-25/0"		Very loose		
0									11.5 Concrete		
15			3D		15-17	24/13	6-12-12-16		13.0 Medium dense, black sandy SILT with ash (FILL) -Petroleum odor and sheen		
-5											
20			4D		20-22	24/9	6-6-4-3		19.0 Medium dense to loose, gray-brown silty SAND with wood		
-10								w = 22.6 % O = 1.7%			
25			5D		25-27	24/15	WOH-1-1-1		Very loose, gray sandy SILT with shells and organics (Bay Mud)		
-15								w = 39.7 % O = 2.8%			
30			6D		30-32	24/24	WOH FOR 24"		29.0 Medium to stiff, gray silty CLAY with shells and organics to 32'		
-20											
35			1U		35-37	24/24					
-25			1V		37-37.5	6					
			1V		37.5-38	6					
								W _L =55 W _P =30 S _v =1.55/0.31ksf S _v =1.61/0.31ksf			

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: B-1003



BORING LOG

CLIENT: Woodard & Curran
 PROJECT: Proposed IMT West Cold Storage Facility
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1003**
 SHEET: 2 of 2
 PROJECT NO. 16-1314
 DATE START: 12/21/2017
 DATE FINISH: 12/21/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
-30									Medium to stiff, gray silty CLAY		
45			2U		45-47	24/24					
-35			2V		47-47.5	6			W _L =55 W _P =27 S _v =1.92/0.43ksf S _v =2.11/0.62ksf		
			2V'		47.5-48	6					
50											
-40											
55			3U		55-57	24/24					
-45			3V		57-57.5	6			W _L =48 W _P =25 S _v =1.61/0.43ksf S _v =1.92/0.43ksf		
			3V'		57.5-58	6					
60			7D		60-62	24/24	WOH- WOH FOR 12"-2		59.0 Very loose, gray SAND and silt with shells and wood		
-50											
65			8D		65-67	24/24	1-1-2-2	w =23.6 %			
-55											
70			9D		70-72	24/19	7-16- 21-22	w =16.5 %	69.0 Dense, gray fine to medium SAND, some gravel, some silt		
-60											
75											
-65											
80			10D		80-82	24/21	8-18- 20-29	w =20.6 %	79.0 Dense, gray silty fine to medium SAND		
-70									82.0 Bottom of Exploration at 82.0 feet		

BORING / WELL 16-1314.GPJ SWCE TEMPLATE.GDT 1/29/18

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1003**



BORING LOG

BORING NO.: **B-1004**

SHEET: 1 of 2

PROJECT NO. 16-1314

DATE START: 12/18/2017

DATE FINISH: 12/18/2017

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 10' +/- TOTAL DEPTH (FT): 82.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 140 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): ∇ 8 ft 12/18/2017 Soils wet 5-7' and saturated below 8'.
GENERAL NOTES: Backfilled borehole with bentonite to 22' below ground surface.

KEY TO NOTES AND SYMBOLS: Water Level
 ∇ At time of Drilling D = Split Spoon Sample Pen. = Penetration Length WOR = Weight of Rods
 ∇ At Completion of Drilling U = Thin Walled Tube Sample Rec. = Recovery Length WOH = Weight of Hammer
 ∇ After Drilling R = Rock Core Sample bpf = Blows per Foot RQD = Rock Quality Designation S_v = Field Vane Shear Strength, kips/sq.ft.
V = Field Vane Shear mpf = Minute per Foot PID = Photoionization Detector q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
			1D	X	0-2	24/16	5-5-6-6		Medium dense, brown-gray-black silty gravelly SAND (FILL)		
5	5		2D	X	5-7	24/8	4-1-1-1		5.5 Very loose, gray SAND and silt, some clay with shells (FILL) -naphthalene odor	∇	
0	10		3D	X	10-12	24/10	5-3-6-6		8.0 Loose, brown-black silty SAND and gravel (FILL) -petroleum sheen and naphthalene odor		
-5	15		4D	X	15-17	24/12	2-3-2-2				
-10	20		5D	X	20-22	24/13	1-2-1-1	w=31 % O=1.8%	19.0 Very loose, gray SILT and sand, trace gravel with shells, organics (Bay Mud)		
-15	25		6D	X	25-27	24/24	WOH FOR 24"	w=48.3 % O=2.9%	24.0 Medium to stiff, gray silty CLAY with sand layers/seams		
-20	30		1U	■	30-32	24/12		W _L =47 W _P =28 w=53.4 % S _v =1.05/0.27ksf S _v =1.09+ksf			
			1V	■	32-32.7	8					
			1V	■	32.7- 33.4	8					
-25	35										

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1004**



BORING NO.: B-1004

SHEET: 2 of 2

PROJECT NO. 16-1314

DATE START: 12/18/2017

DATE FINISH: 12/18/2017

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

BORING / WELL 16-1314.GPJ SWCE TEMPLATE.GDT 1/29/18

BORING NO.: B-1004



BORING LOG

BORING NO.: **B-1005**

SHEET: 1 of 2

PROJECT NO. 16-1314

DATE START: 12/19/2017

DATE FINISH: 12/19/2017

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 11' +/- TOTAL DEPTH (FT): 82.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 140 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): 8 ft 12/19/2017 Soils saturated below 8'

GENERAL NOTES: Backfilled borehole with bentonite to 19' below ground surface.

KEY TO NOTES AND SYMBOLS: Water Level
▽ At time of Drilling
▽ At Completion of Drilling
▽ After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10			1D		0-2	24/16	3-6-11-18		Medium dense to very loose, brown-black silty gravelly SAND with brick (FILL) -petroleum odor and sheen below-		
5			2D		5-7	24/18	13-15-6-8				
0			3D		10-12	24/18	1-2-1-2				
-5			4D		15-17	24/7	2-1-1-3				
-10			5D		20-22	24/16	4-6-5-6	w =25.5 % O =1.2%			
-15			6D		25-27	24/1	6-4-2-2				
-20			7D		30-32	24/5	1-1-2-3	w =38.9 % O =2.0%			
-25			1U		35-37	24/24		W _L =49 W _p =26 w =46.5 % S _v =2.05/0.31ksf S _v =1.86/0.31ksf			
			1V		37-37.5	6					
			1V		37.5-38	6					

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1005**



BORING LOG

CLIENT: Woodard & Curran
 PROJECT: Proposed IMT West Cold Storage Facility
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1005**
 SHEET: 2 of 2
 PROJECT NO. 16-1314
 DATE START: 12/19/2017
 DATE FINISH: 12/19/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
-30									Medium to stiff, gray silty CLAY with sand layers/seams		
-35	45		2U		45-47	24/22					
			2V		47-47.5	6					
			2V'		47.5-48	6			W _L =54 W _P =29 w=51.1 % S _v =2.17/0.43ksf S _v '=2.17/0.62ksf		
-40	50										
-45	55		3U		55-57	24/21					
			3V		57-57.5	6			W _L =43 W _P =24 w=41.2 % S _v =2.05/0.56ksf S _v '=2.17/0.50ksf		
			3V'		57.5-58	6					
-50	60		8D		60-62	24/18	4-3-4-5		w=23 %	59.0	Loose to medium dense, gray silty fine to coarse SAND with wood and pinecones
-55	65		9D		65-67	24/16	6-7-11-15				
-60	70		10D		70-72	24/10	5-5-5-2		w=21.1 %	69.0	Loose to medium dense, gray SAND, some silt, some gravel
-65	75									75.0	Medium dense, gray silty SAND
-70	80		11D		80-82	24/18	2-5-11-13		w=21 %		
										82.0	Bottom of Exploration at 82.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1005**

KEY TO NOTES & SYMBOLS

Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q _u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S _v	-	field vane shear strength, kips/sq. ft.
L _v	-	lab vane shear strength, kips/sq. ft.
q _p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W _L	-	liquid limit - Atterberg test
W _P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ _T	-	total soil weight
γ _B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%
With	Undifferentiated

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to 1/2" thickness
Layer:	1/2" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: Test Boring Explorations - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: Test Pit Explorations - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.



APPENDIX D

Cone Penetrometer Test Data Report

PRESENTATION OF SITE INVESTIGATION RESULTS

Proposed Cold Storage Warehouse Portland, Maine

Prepared for:

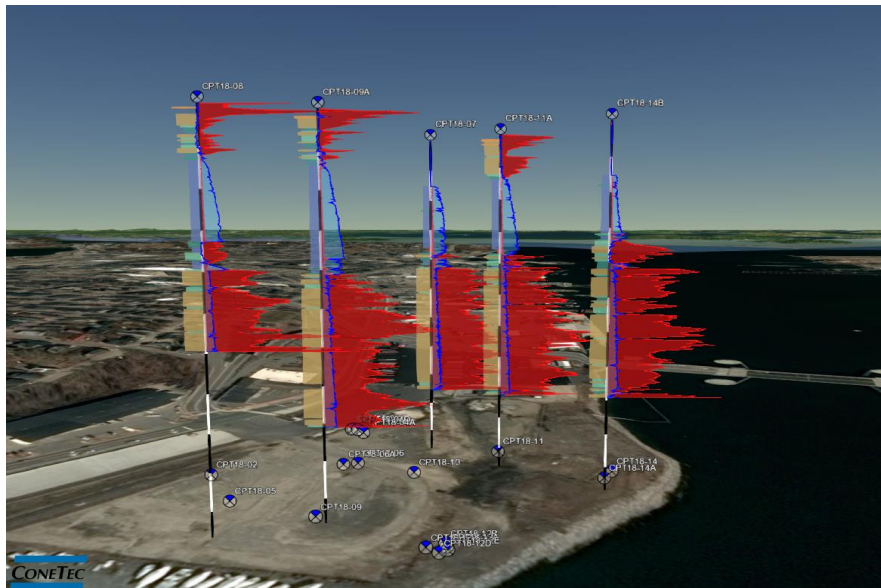
S.W. Cole Engineering

ConeTec Job No: 18-53107

Project Start Date: 18-Sep-2018

Project End Date: 21-Sep-2018

Report Date: 25-Sep-2018



Prepared by:

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Introduction

The enclosed report presents the results of a cone penetration testing (CPTu or CPT) program carried out at the proposed Cold Storage Warehouse site located in Portland, Maine. The site investigation program was conducted by ConeTec Inc. (ConeTec), under contract to S.W. Cole Engineering (S.W. Cole) of Gray, Maine.

A total of 25 cone penetration tests were completed at 11 locations (there were numerous shallow refusals that were offset or drilled out and then reattempted to be pushed to depth). The CPT program was performed to evaluate the subsurface soil conditions. CPT sounding locations were selected and numbered under supervision of S.W. Cole personnel (Mr. Justin Dubois).

Project Information

Project	
Client	S.W. Cole Engineering
Project	Cold Storage Warehouse, Portland, ME
ConeTec project number	18-53107

A map from CESIUM including the CPT test locations is presented below.



Rig Description	Deployment System	Test Type
CPT Truck Rig	25 ton truck mounted (twin cylinders)	CPT

Coordinates		
Test Type	Collection Method	EPSG Number
CPT	GPS (GlobalSat MR-350)	32619 (WGS 84 / UTM North)

Cone Penetration Test (CPT)	
Depth reference	Ground surface at the time of the investigation.
Tip and sleeve data offset	0.1 meter. This has been accounted for in the CPT data files.
Pore pressure dissipation (PPD) tests	Twelve pore pressure dissipation tests were completed primarily to determine the phreatic surface.
Additional Comments	None.

Cone Description	Cone Number	Cross Sectional Area (cm ²)	Sleeve Area (cm ²)	Tip Capacity (bar)	Sleeve Capacity (bar)	Pore Pressure Capacity (psi)
550:T1500F15U500	550	15	225	1500	15	500

Limitations

This report has been prepared for the exclusive use of S.W. Cole Engineering (Client) for the project titled "Cold Storage Warehouse, Portland, ME". The report's contents may not be relied upon by any other party without the express written permission of ConeTec. ConeTec has provided site investigation services, prepared the factual data reporting, and provided geotechnical parameter calculations consistent with current best practices. No other warranty, expressed or implied, is made.

The information presented in the report document and the accompanying data set pertain to the specific project, site conditions and objectives described to ConeTec by the Client. In order to properly understand the factual data, assumptions and calculations, reference must be made to the documents provided and their accompanying data sets, in their entirety.

The cone penetration tests (CPTu) are conducted using an integrated electronic piezocone penetrometer and data acquisition system manufactured by Adara Systems Ltd. of Richmond, British Columbia, Canada.

ConeTec's piezocone penetrometers are compression type designs in which the tip and friction sleeve load cells are independent and have separate load capacities. The piezocones use strain gauged load cells for tip and sleeve friction and a strain gauged diaphragm type transducer for recording pore pressure. The piezocones also have a platinum resistive temperature device (RTD) for monitoring the temperature of the sensors, an accelerometer type dual axis inclinometer and a geophone sensor for recording seismic signals. All signals are amplified down hole within the cone body and the analog signals are sent to the surface through a shielded cable.

ConeTec penetrometers are manufactured with various tip, friction and pore pressure capacities in both 10 cm² and 15 cm² tip base area configurations in order to maximize signal resolution for various soil conditions. The 15 cm² penetrometers do not require friction reducers as they have a diameter larger than the deployment rods. The 10 cm² piezocones use a friction reducer consisting of a rod adapter extension behind the main cone body with an enlarged cross sectional area (typically 44 mm diameter over a length of 32 mm with tapered leading and trailing edges) located at a distance of 585 mm above the cone tip.

The penetrometers are designed with equal end area friction sleeves, a net end area ratio of 0.8 and cone tips with a 60 degree apex angle.

All ConeTec piezocones can record pore pressure at various locations. Unless otherwise noted, the pore pressure filter is located directly behind the cone tip in the "u₂" position (ASTM Type 2). The filter is 6 mm thick, made of porous plastic (polyethylene) having an average pore size of 125 microns (90-160 microns). The function of the filter is to allow rapid movements of extremely small volumes of water needed to activate the pressure transducer while preventing soil ingress or blockage.

The piezocone penetrometers are manufactured with dimensions, tolerances and sensor characteristics that are in general accordance with the current ASTM D5778 standard. ConeTec's calibration criteria also meet or exceed those of the current ASTM D5778 standard. An illustration of the piezocone penetrometer is presented in Figure CPTu.

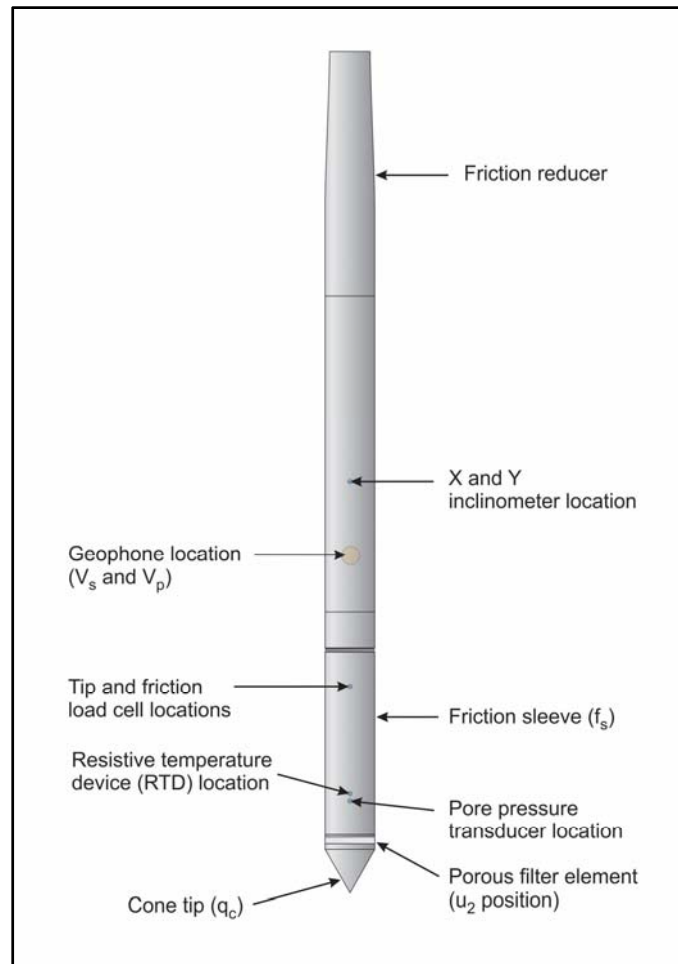


Figure CPTu. Piezocone Penetrometer (15 cm²)

The ConeTec data acquisition systems consist of a Windows based computer and a signal conditioner and power supply interface box with a 16 bit (or greater) analog to digital (A/D) converter. The data is recorded at fixed depth increments using a depth wheel attached to the push cylinders or by using a spring loaded rubber depth wheel that is held against the cone rods. The typical recording intervals are either 2.5 cm or 5.0 cm depending on project requirements; custom recording intervals are possible. The system displays the CPTu data in real time and records the following parameters to a storage media during penetration:

- Depth
- Uncorrected tip resistance (q_c)
- Sleeve friction (f_s)
- Dynamic pore pressure (u)
- Additional sensors such as resistivity, passive gamma, ultra violet induced fluorescence, if applicable

All testing is performed in accordance to ConeTec's CPT operating procedures which are in general accordance with the current ASTM D5778 standard.

Prior to the start of a CPTu sounding a suitable cone is selected, the cone and data acquisition system are powered on, the pore pressure system is saturated with either glycerin or silicone oil and the baseline readings are recorded with the cone hanging freely in a vertical position.

The CPTu is conducted at a steady rate of 2 cm/s, within acceptable tolerances. Typically one meter length rods with an outer diameter of 1.5 inches are added to advance the cone to the sounding termination depth. After cone retraction final baselines are recorded.

Additional information pertaining to ConeTec's cone penetration testing procedures:

- Each filter is saturated in silicone oil or glycerin under vacuum pressure prior to use
- Recorded baselines are checked with an independent multi-meter
- Baseline readings are compared to previous readings
- Soundings are terminated at the client's target depth or at a depth where an obstruction is encountered, excessive rod flex occurs, excessive inclination occurs, equipment damage is likely to take place, or a dangerous working environment arises
- Differences between initial and final baselines are calculated to ensure zero load offsets have not occurred and to ensure compliance with ASTM standards

The interpretation of piezocone data for this report is based on the corrected tip resistance (q_t), sleeve friction (f_s) and pore water pressure (u). The interpretation of soil type is based on the correlations developed by Robertson (1990) and Robertson (2009). It should be noted that it is not always possible to accurately identify a soil type based on these parameters. In these situations, experience, judgment and an assessment of other parameters may be used to infer soil behavior type.

The recorded tip resistance (q_c) is the total force acting on the piezocone tip divided by its base area. The tip resistance is corrected for pore pressure effects and termed corrected tip resistance (q_t) according to the following expression presented in Robertson et al, 1986:

$$q_t = q_c + (1-a) \cdot u_2$$

where: q_t is the corrected tip resistance

q_c is the recorded tip resistance

u_2 is the recorded dynamic pore pressure behind the tip (u_2 position)

a is the Net Area Ratio for the piezocone (0.8 for ConeTec probes)

The sleeve friction (f_s) is the frictional force on the sleeve divided by its surface area. As all ConeTec piezocones have equal end area friction sleeves, pore pressure corrections to the sleeve data are not required.

The dynamic pore pressure (u) is a measure of the pore pressures generated during cone penetration. To record equilibrium pore pressure, the penetration must be stopped to allow the dynamic pore pressures to stabilize. The rate at which this occurs is predominantly a function of the permeability of the soil and the diameter of the cone.

The friction ratio (R_f) is a calculated parameter. It is defined as the ratio of sleeve friction to the tip resistance expressed as a percentage. Generally, saturated cohesive soils have low tip resistance, high

friction ratios and generate large excess pore water pressures. Cohesionless soils have higher tip resistances, lower friction ratios and do not generate significant excess pore water pressure.

A summary of the CPTu soundings along with test details and individual plots are provided in the appendices. A set of interpretation files were generated for each sounding based on published correlations and are provided in Excel format in the data release folder. Information regarding the interpretation methods used is included in an appendix.

For additional information on CPTu interpretations, refer to Robertson et al. (1986), Lunne et al. (1997), Robertson (2009), Mayne (2013, 2014) and Mayne and Peuchen (2012).

References

ASTM D5778-12, 2012, "Standard Test Method for Performing Electronic Friction Cone and Piezocone Penetration Testing of Soils", ASTM, West Conshohocken, US.

Lunne, T., Robertson, P.K. and Powell, J. J. M., 1997, "Cone Penetration Testing in Geotechnical Practice", Blackie Academic and Professional.

Mayne, P.W., 2013, "Evaluating yield stress of soils from laboratory consolidation and in-situ cone penetration tests", Sound Geotechnical Research to Practice (Holtz Volume) GSP 230, ASCE, Reston/VA: 406-420.

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Mayne, P.W., 2014, "Interpretation of geotechnical parameters from seismic piezocone tests", CPT'14 Keynote Address, Las Vegas, NV, May 2014.

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Robertson, P.K., 1990, "Soil Classification Using the Cone Penetration Test", Canadian Geotechnical Journal, Volume 27: 151-158.

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The cone penetration test is halted at specific depths to carry out pore pressure dissipation (PPD) tests, shown in Figure PPD-1. For each dissipation test the cone and rods are decoupled from the rig and the data acquisition system measures and records the variation of the pore pressure (u) with time (t).

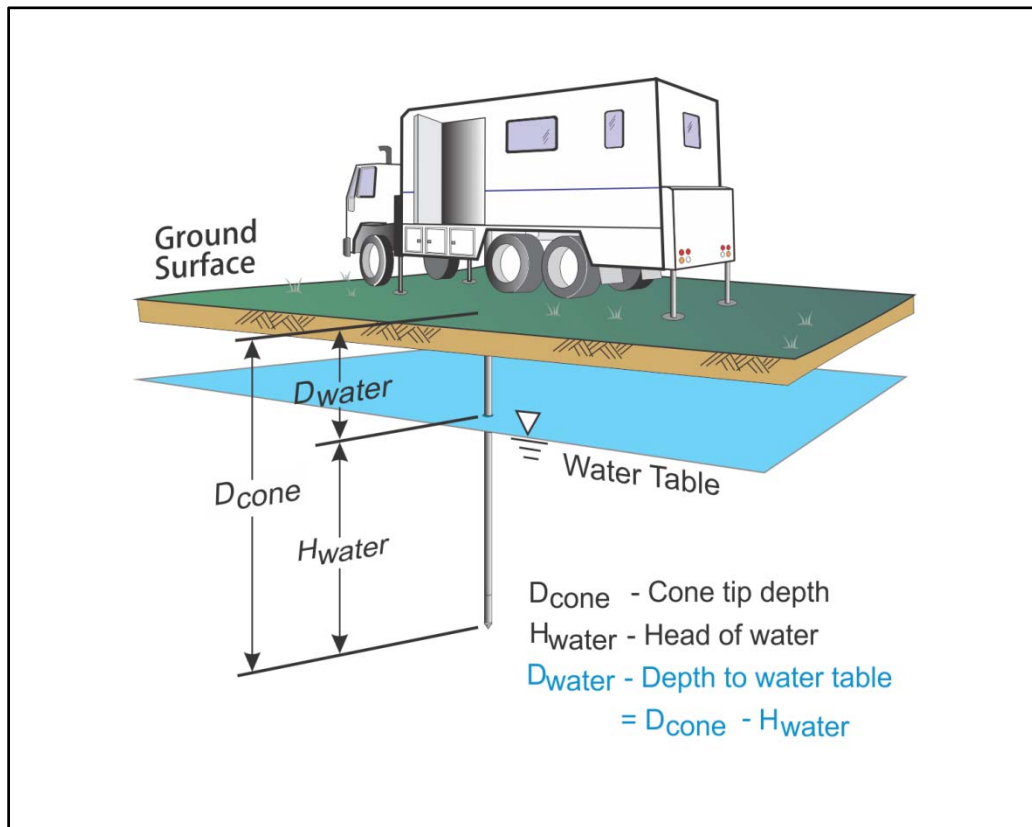


Figure PPD-1. Pore pressure dissipation test setup

Pore pressure dissipation data can be interpreted to provide estimates of ground water conditions, permeability, consolidation characteristics and soil behavior.

The typical shapes of dissipation curves shown in Figure PPD-2 are very useful in assessing soil type, drainage, in situ pore pressure and soil properties. A flat curve that stabilizes quickly is typical of a freely draining sand. Undrained soils such as clays will typically show positive excess pore pressure and have long dissipation times. Dilative soils will often exhibit dynamic pore pressures below equilibrium that then rise over time. Overconsolidated fine-grained soils will often exhibit an initial dilatory response where there is an initial rise in pore pressure before reaching a peak and dissipating.

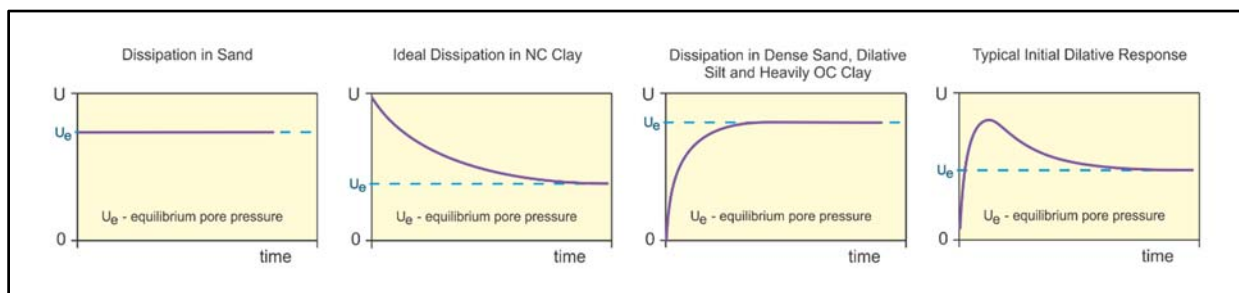


Figure PPD-2. Pore pressure dissipation curve examples

In order to interpret the equilibrium pore pressure (u_{eq}) and the apparent phreatic surface, the pore pressure should be monitored until such time as there is no variation in pore pressure with time as shown for each curve of Figure PPD-2.

In fine grained deposits the point at which 100% of the excess pore pressure has dissipated is known as t_{100} . In some cases this can take an excessive amount of time and it may be impractical to take the dissipation to t_{100} . A theoretical analysis of pore pressure dissipations by Teh and Houlsby (1991) showed that a single curve relating degree of dissipation versus theoretical time factor (T^*) may be used to calculate the coefficient of consolidation (c_h) at various degrees of dissipation resulting in the expression for c_h shown below.

$$c_h = \frac{T^* \cdot a^2 \cdot \sqrt{I_r}}{t}$$

Where:

- T^* is the dimensionless time factor (Table Time Factor)
 a is the radius of the cone
 I_r is the rigidity index
 t is the time at the degree of consolidation

Table Time Factor. T^* versus degree of dissipation (Teh and Houlsby, 1991)

Degree of Dissipation (%)	20	30	40	50	60	70	80
$T^* (u_2)$	0.038	0.078	0.142	0.245	0.439	0.804	1.60

The coefficient of consolidation is typically analyzed using the time (t_{50}) corresponding to a degree of dissipation of 50% (u_{50}). In order to determine t_{50} , dissipation tests must be taken to a pressure less than u_{50} . The u_{50} value is half way between the initial maximum pore pressure and the equilibrium pore pressure value, known as u_{100} . To estimate u_{50} , both the initial maximum pore pressure and u_{100} must be known or estimated. Other degrees of dissipations may be considered, particularly for extremely long dissipations.

At any specific degree of dissipation the equilibrium pore pressure (u at t_{100}) must be estimated at the depth of interest. The equilibrium value may be determined from one or more sources such as measuring the value directly (u_{100}), estimating it from other dissipations in the same profile, estimating the phreatic surface and assuming hydrostatic conditions, from nearby soundings, from client provided information, from site observations and/or past experience, or from other site instrumentation.

For calculations of c_h (Teh and Houlsby, 1991), t_{50} values are estimated from the corresponding pore pressure dissipation curve and a rigidity index (I_r) is assumed. For curves having an initial dilatory response in which an initial rise in pore pressure occurs before reaching a peak, the relative time from the peak value is used in determining t_{50} . In cases where the time to peak is excessive, t_{50} values are not calculated.

Due to possible inherent uncertainties in estimating I_r , the equilibrium pore pressure and the effect of an initial dilatory response on calculating t_{50} , other methods should be applied to confirm the results for c_h .

Additional published methods for estimating the coefficient of consolidation from a piezocone test are described in Burns and Mayne (1998, 2002), Jones and Van Zyl (1981), Robertson et al. (1992) and Sully et al. (1999).

A summary of the pore pressure dissipation tests and dissipation plots are presented in the relevant appendix.

References

Burns, S.E. and Mayne, P.W., 1998, "Monotonic and dilatatory pore pressure decay during piezocone tests", Canadian Geotechnical Journal 26 (4): 1063-1073.

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Jones, G.A. and Van Zyl, D.J.A., 1981, "The piezometer probe: a useful investigation tool", Proceedings, 10th International Conference on Soil Mechanics and Foundation Engineering, Vol. 3, Stockholm: 489-495.

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Sully, J.P., Robertson, P.K., Campanella, R.G. and Woeller, D.J., 1999, "An approach to evaluation of field CPTU dissipation data in overconsolidated fine-grained soils", Canadian Geotechnical Journal, 36(2): 369-381.

Teh, C.I., and Houlsby, G.T., 1991, "An analytical study of the cone penetration test in clay", Geotechnique, 41(1): 17-34.

The appendices listed below are included in the report:

- Cone Penetration Test Summary and Standard Cone Penetration Test Plots
- Advanced Cone Penetration Test Plots
- Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots

Cone Penetration Test Summary and Standard Cone Penetration Test Plots



Job No: 18-53107
Client: S.W. Cole Engineering
Project: Cold Storage Warehouse, Portland, ME
Start Date: 18-Sep-2018
End Date: 21-Sep-2018

CONE PENETRATION TEST SUMMARY

Sounding ID	File Name	Date	Cone	Assumed Phreatic Surface ¹ (ft)	Final Depth (ft)	Northing ² (m)	Easting (m)	Refer to Notation Number
CPT18-02	18-53107_CP02	9/19/2018	550:T1500F15U500	9.9	74.97	4833219	398173	
CPT18-04	18-53107_CP04	9/19/2018	550:T1500F15U500		3.94	4833244	398243	5
CPT18-04A	18-53107_CP04A	9/19/2018	550:T1500F15U500	5.4	19.44	4833237	398244	3
CPT18-04B	18-53107_CP04B	9/20/2018	550:T1500F15U500	5.4	19.36	4833244	398242	4
CPT18-04C	18-53107_CP04C	9/21/2018	550:T1500F15U500	5.4	20.10	4833242	398244	4
CPT18-04D	18-53107_CP04D	9/21/2018	550:T1500F15U500	5.4	21.00	4833242	398244	4
CPT18-05	18-53107_CP05	9/21/2018	550:T1500F15U500	8.3	78.82	4833191	398170	
CPT18-06	18-53107_CP06	9/19/2018	550:T1500F15U500	8.5	81.45	4833201	398222	4
CPT18-06A	18-53107_CP06A	9/21/2018	550:T1500F15U500	8.5	73.41	4833203	398217	
CPT18-07	18-53107_CP07	9/20/2018	550:T1500F15U500	6.1	139.84	4833210	398261	
CPT18-08	18-53107_CP08	9/21/2018	550:T1500F15U500	7.5	97.28	4833171	398158	
CPT18-09	18-53107_CP09	9/18/2018	550:T1500F15U500	7.3	8.12	4833163	398187	3
CPT18-09A	18-53107_CP09A	9/18/2018	550:T1500F15U500	7.3	132.54	4833162	398190	3
CPT18-10	18-53107_CP10	9/20/2018	550:T1500F15U500	9.4	89.16	4833181	398234	
CPT18-11	18-53107_CP11	9/18/2018	550:T1500F15U500	5.1	17.80	4833184	398275	4
CPT18-11A	18-53107_CP11A	9/18/2018	550:T1500F15U500	5.1	135.01	4833176	398269	
CPT18-12	18-53107_CP12	9/18/2018	550:T1500F15U500		4.59	4833126	398203	5
CPT18-12A	18-53107_CP12A	9/18/2018	550:T1500F15U500	5.2	14.93	4833123	398208	4
CPT18-12B	18-53107_CP12B	9/20/2018	550:T1500F15U500	5.2	8.86	4833125	398209	4
CPT18-12C	18-53107_CP12C	9/20/2018	550:T1500F15U500	5.2	89.89	4833125	398209	
CPT18-12D	18-53107_CP12D	9/20/2018	550:T1500F15U500	5.2	9.84	4833121	398204	4
CPT18-12E	18-53107_CP12E	9/21/2018	550:T1500F15U500	5.2	25.10	4833121	398207	4
CPT18-14	18-53107_CP14	9/18/2018	550:T1500F15U500		2.30	4833140	398292	5

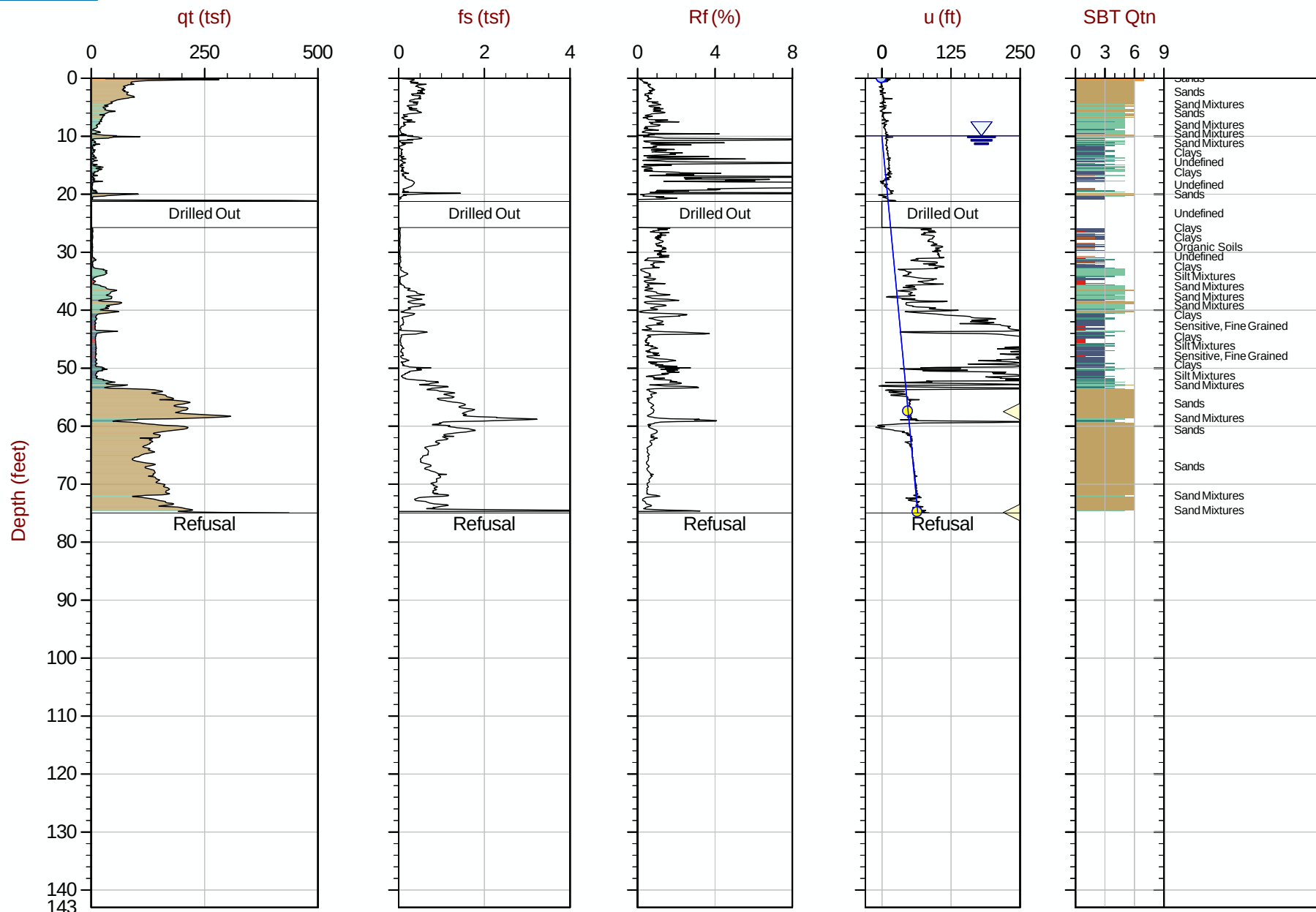


Job No: 18-53107
Client: S.W. Cole Engineering
Project: Cold Storage Warehouse, Portland, ME
Start Date: 18-Sep-2018
End Date: 21-Sep-2018

CONE PENETRATION TEST SUMMARY

Sounding ID	File Name	Date	Cone	Assumed Phreatic Surface ¹ (ft)	Final Depth (ft)	Northing ² (m)	Easting (m)	Refer to Notation Number
CPT18-14A	18-53107_CP14A	9/18/2018	550:T1500F15U500		2.13	4833137	398285	5
CPT18-14B	18-53107_CP14B	9/20/2018	550:T1500F15U500	7.4	129.76	4833133	398281	
Totals	25 soundings				1299.61			

1. Assumed phreatic surface depths were determined from the pore pressure data unless otherwise noted. Hydrostatic data were used for calculated parameters.
2. Coordinates are WGS 84 / UTM Zone 19 and were collected using a MR-350 GlobalSat GPS Receiver.
3. Assumed phreatic surface estimated from the dynamic pore pressure response.
4. Assumed phreatic surface estimated from an adjacent CPT dynamic pore pressure response or a PPD test.
5. No phreatic surface detected.



Max Depth: 22.850 m / 74.97 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: Every Point

File: 18-53107_CP02.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833219m E: 398173m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

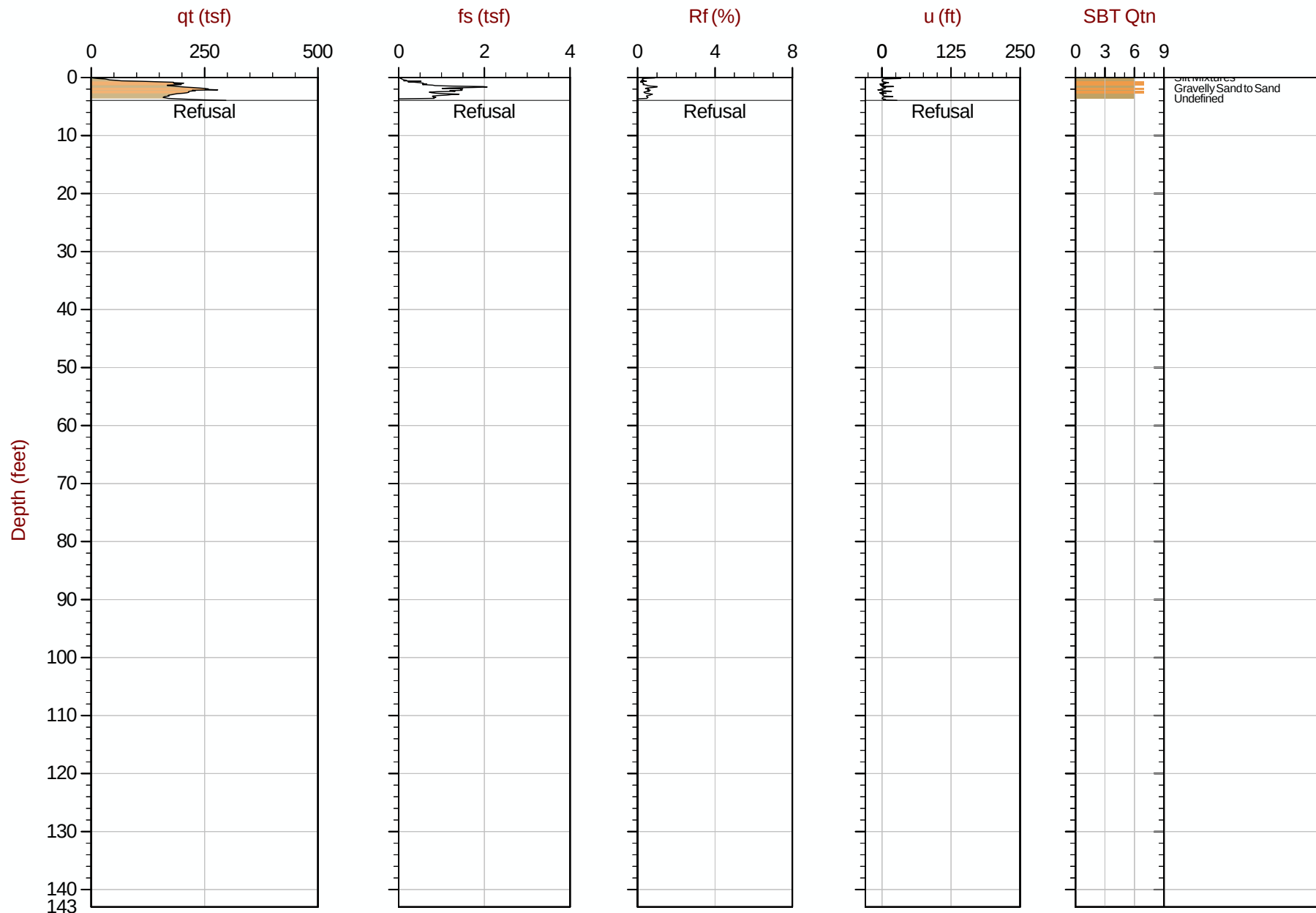
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Date: 2018-09-19 19:58

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-04

Cone: 550:T1500F15U500



Max Depth: 1.200 m / 3.94 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP04.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833244m E: 398243m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

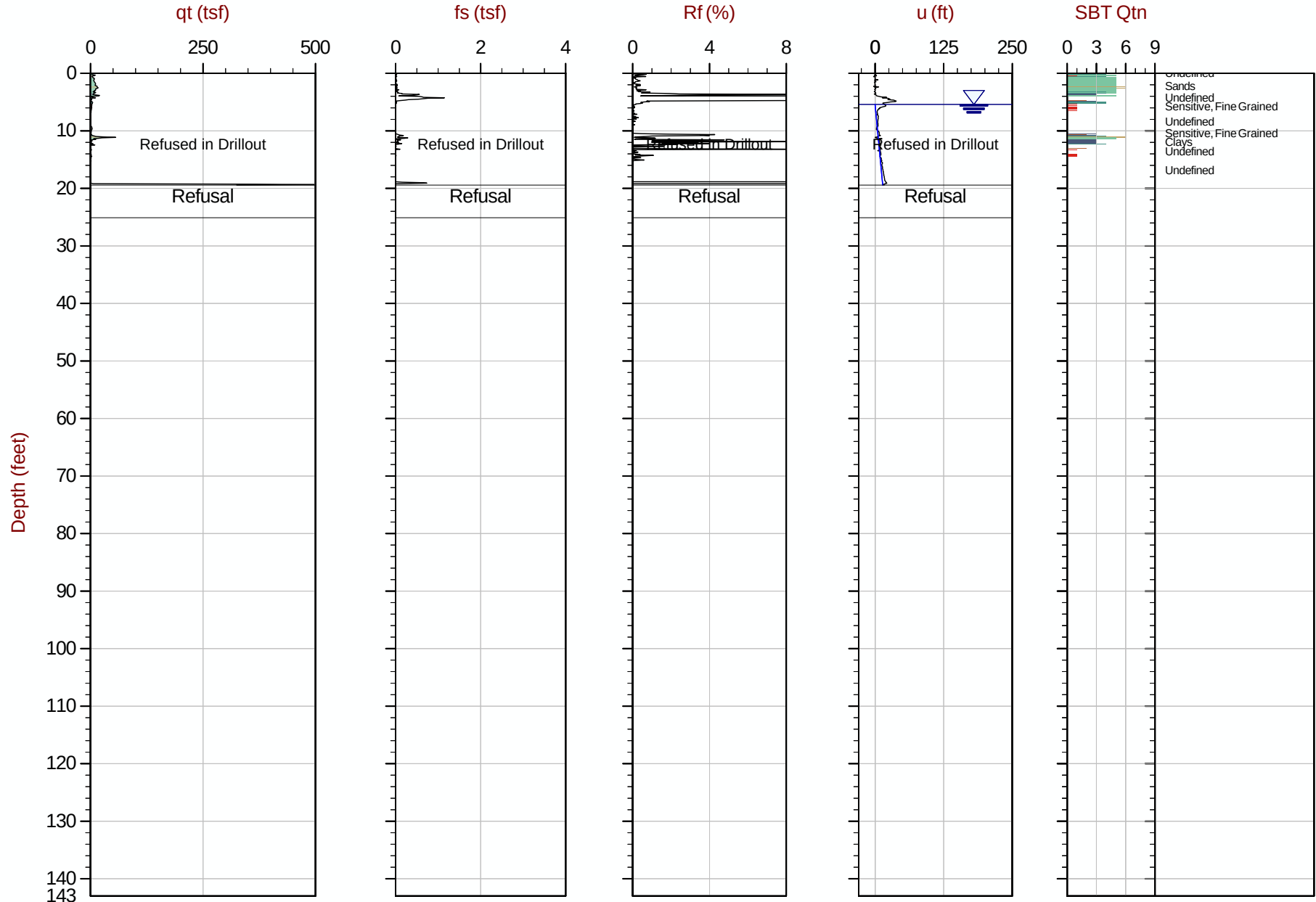
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Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-04A

Cone: 550:T1500F15U500



Max Depth: 5.925 m / 19.44 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP04A.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833237m E: 398244m

Hydrostatic Line ● Ueq ● Assumed Ueq ▲ PPD, Ueq achieved ▲ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



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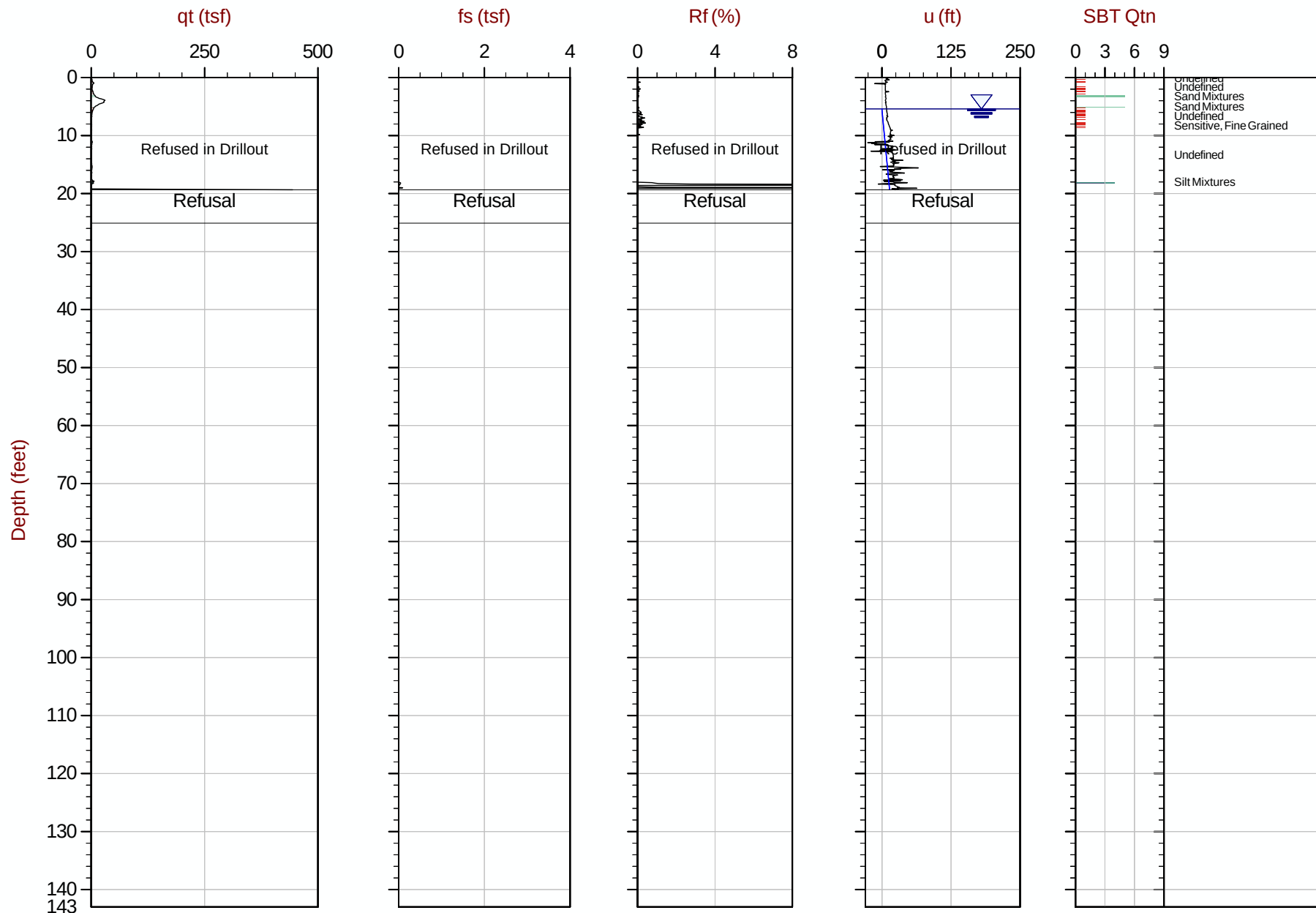
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Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-04B

Cone: 550:T1500F15U500

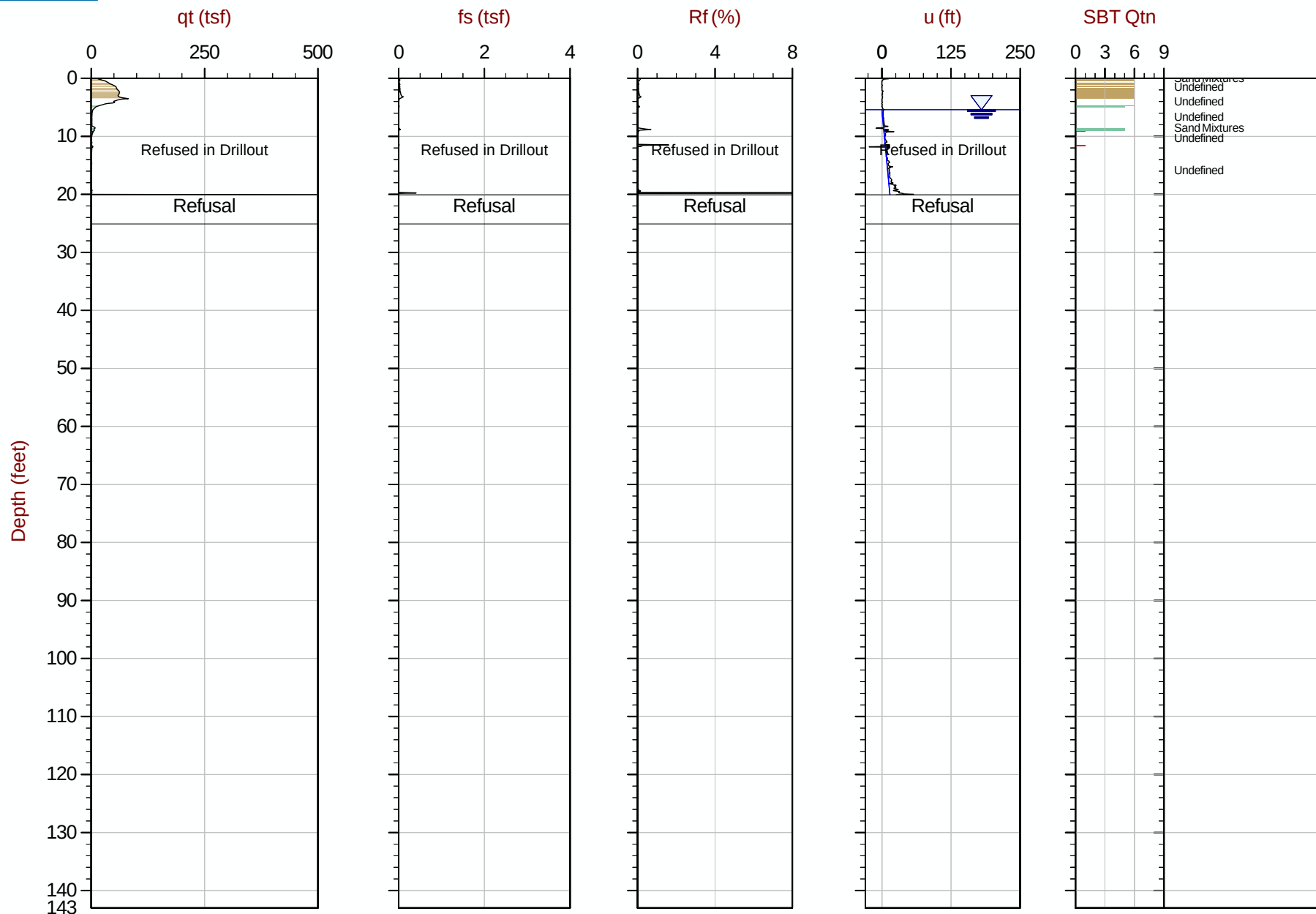


Max Depth: 5.900 m / 19.36 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP04B.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833244m E: 398242m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Max Depth: 6.125 m / 20.09 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: Every Point

File: 18-53107_CP04C.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833242m E: 398244m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

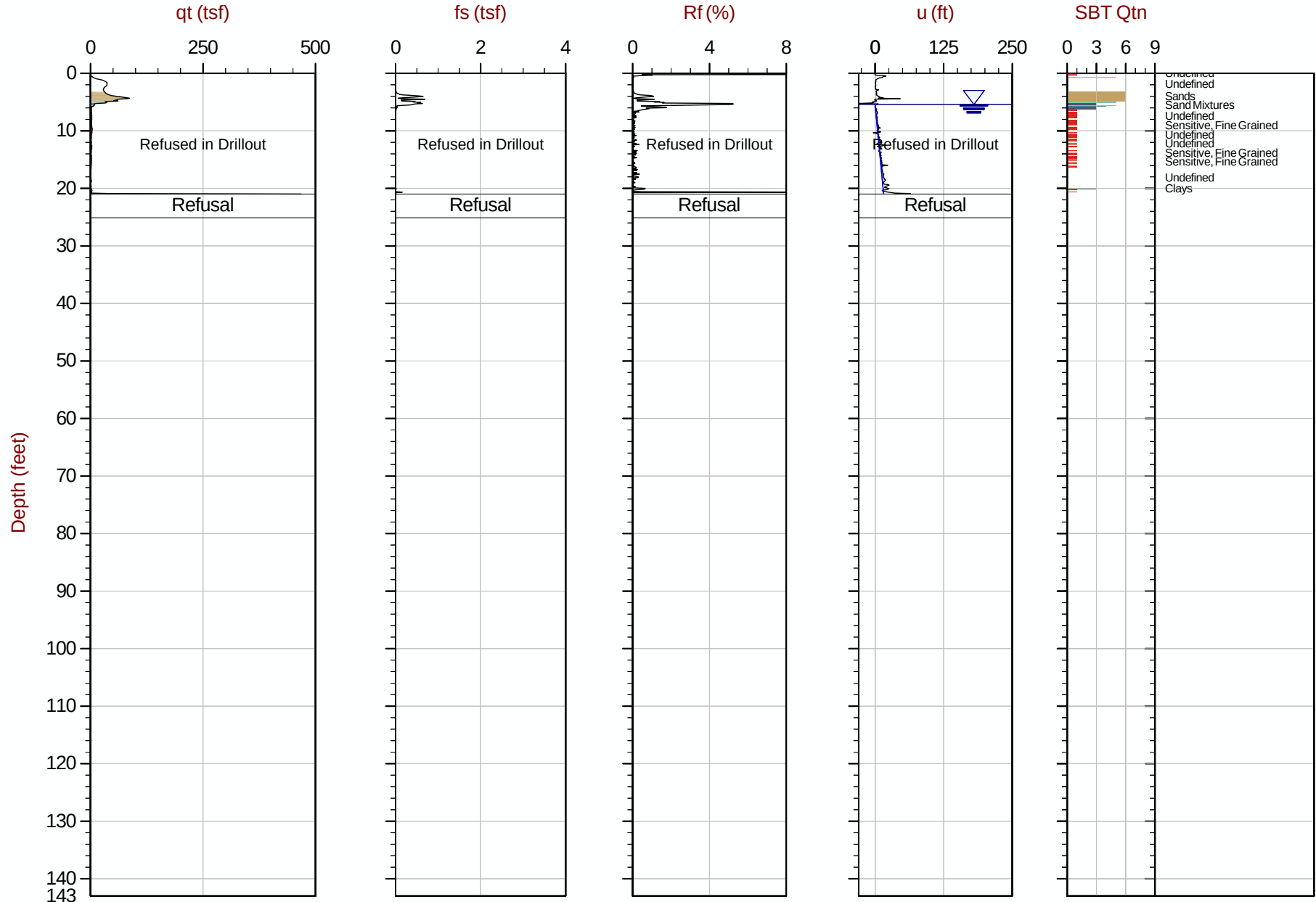
Job No: 18-53107

Date: 2018-09-21 11:13

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-04D

Cone: 550:T1500F15U500



Max Depth: 6.400 m / 21.00 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: Every Point

File: 18-53107_CP04D.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833242m E: 398244m

Hydrostatic Line ● Ueq ● Assumed Ueq ▲ PPD, Ueq achieved ▲ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

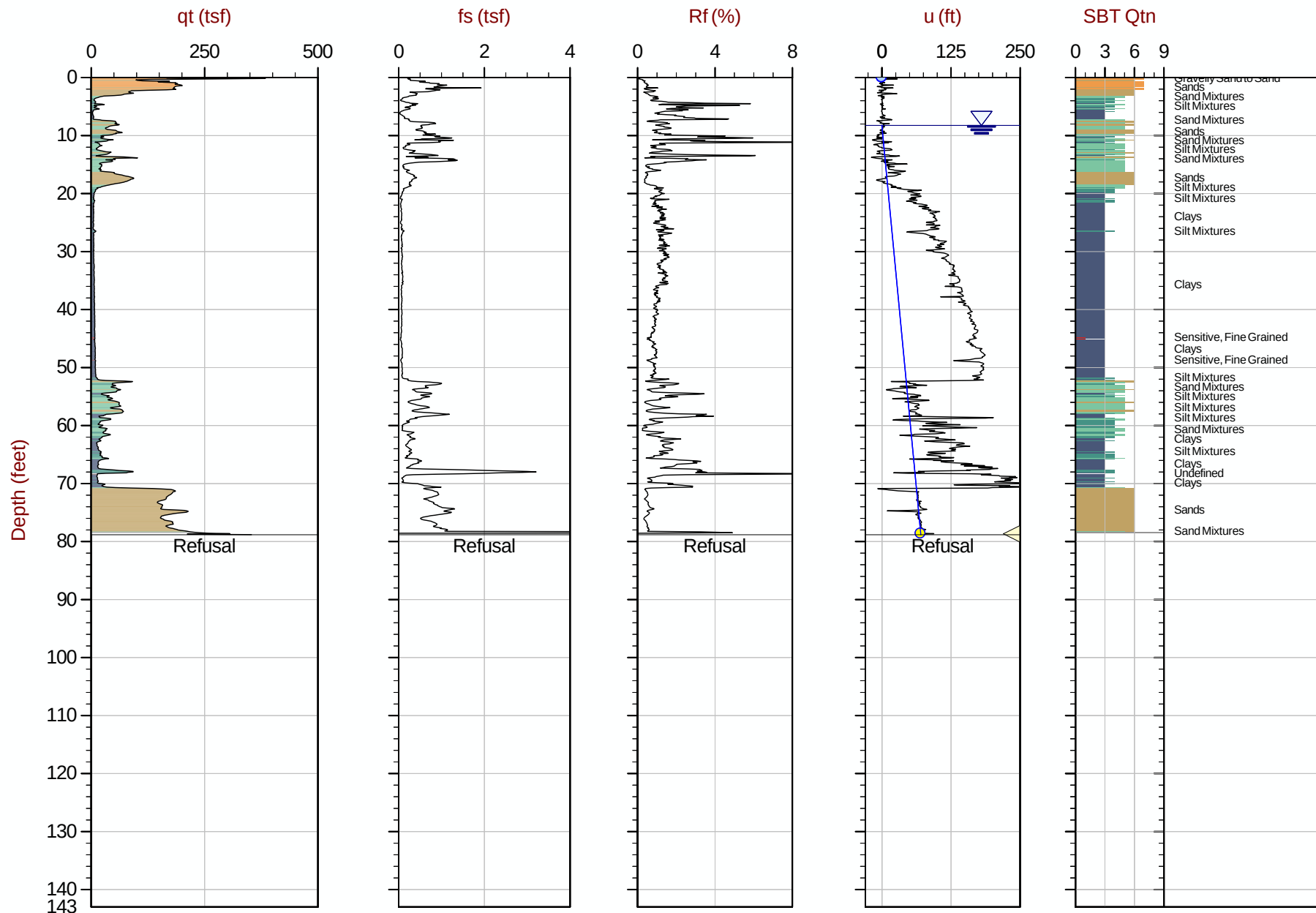
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Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-05

Cone: 550:T1500F15U500



Max Depth: 24.025 m / 78.82 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: EveryPoint

File: 18-53107_CP05.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833191m E: 398170m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ▶ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

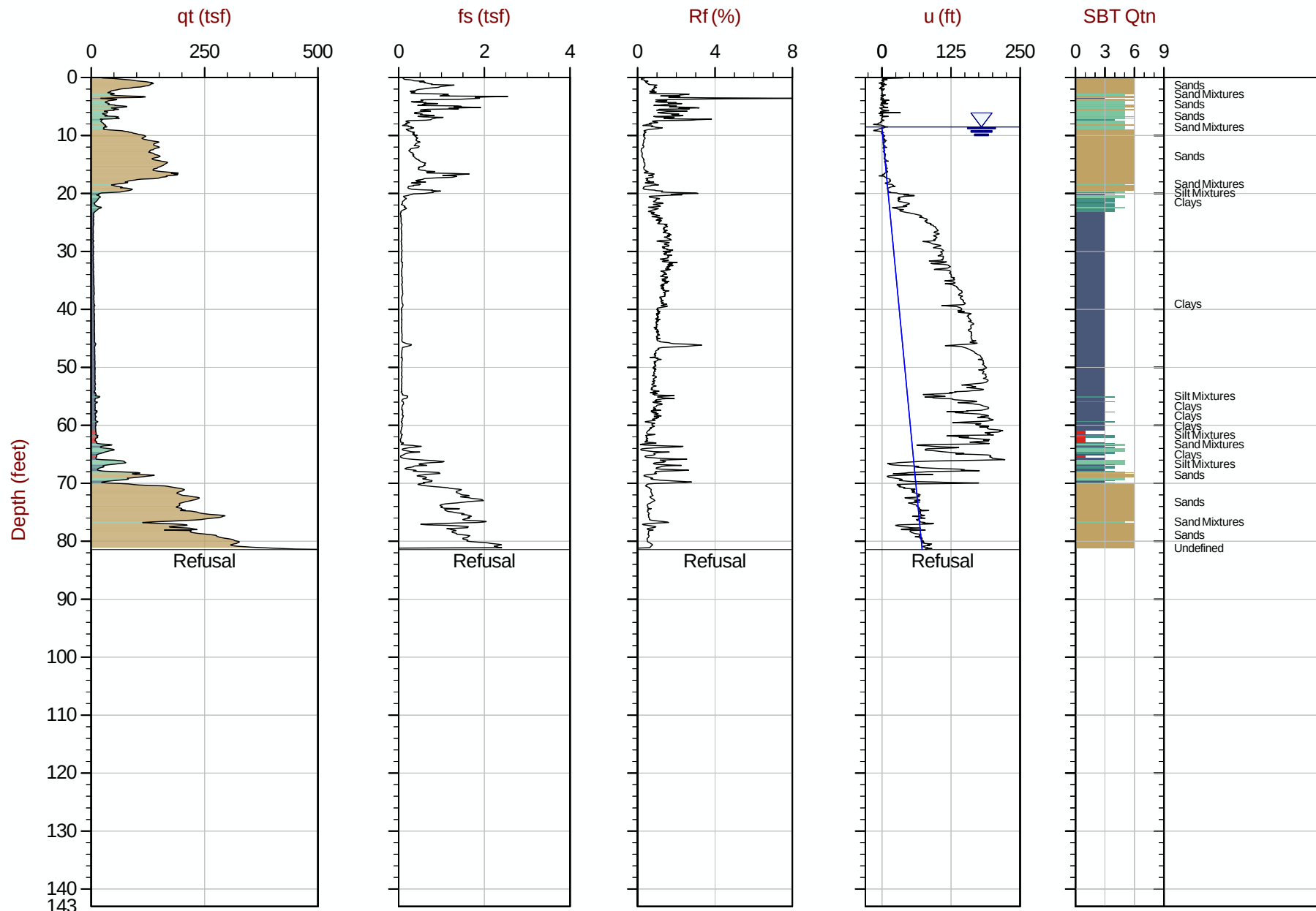
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Date: 2018-09-19 20:48

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-06

Cone: 550:T1500F15U500



Max Depth: 24.825 m / 81.45 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP06.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833201m E: 398222m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

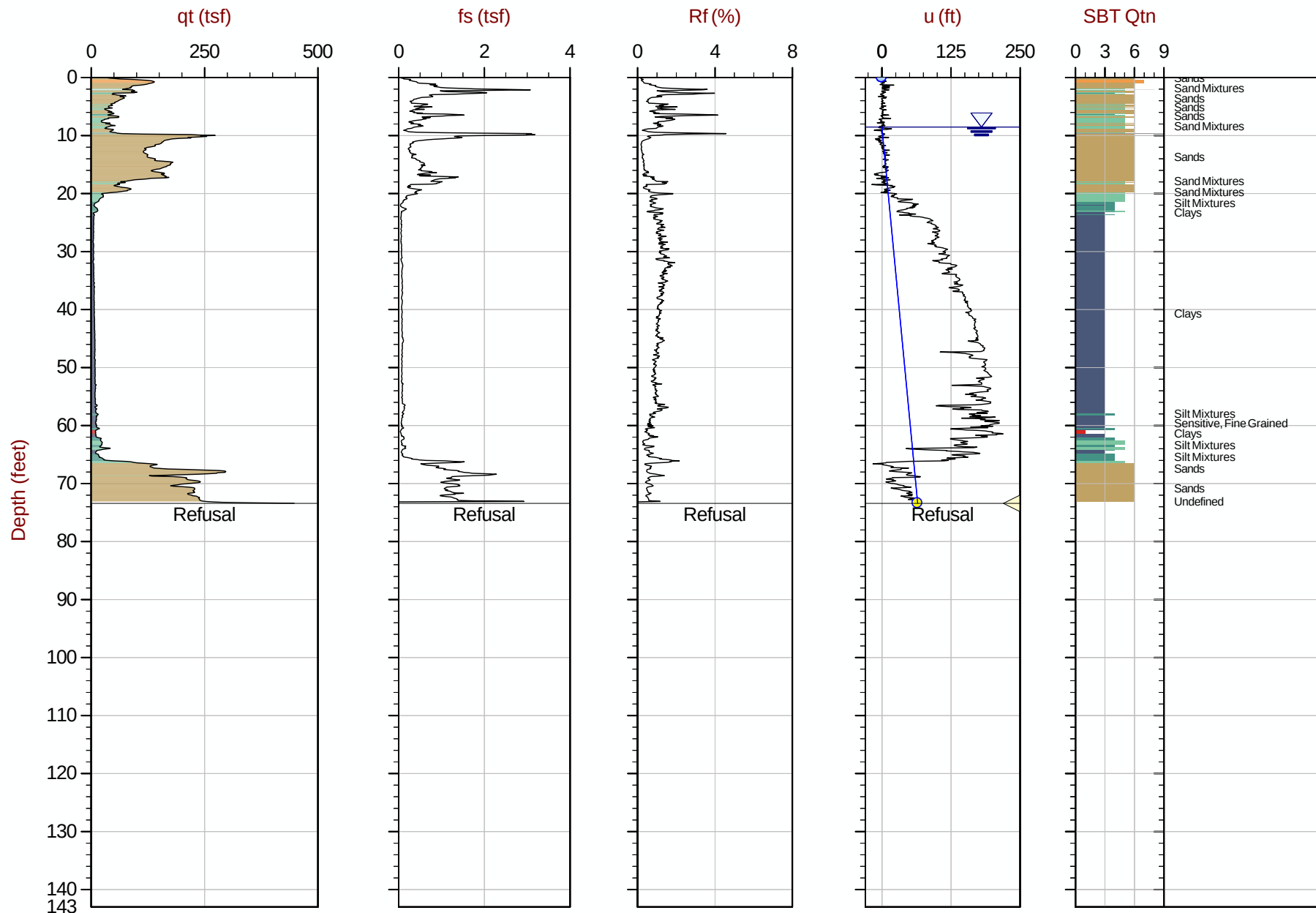
Job No: 18-53107

Date: 2018-09-21 08:17

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-06A

Cone: 550:T1500F15U500



Max Depth: 22.375 m / 73.41 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP06A.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833203m E: 398217m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

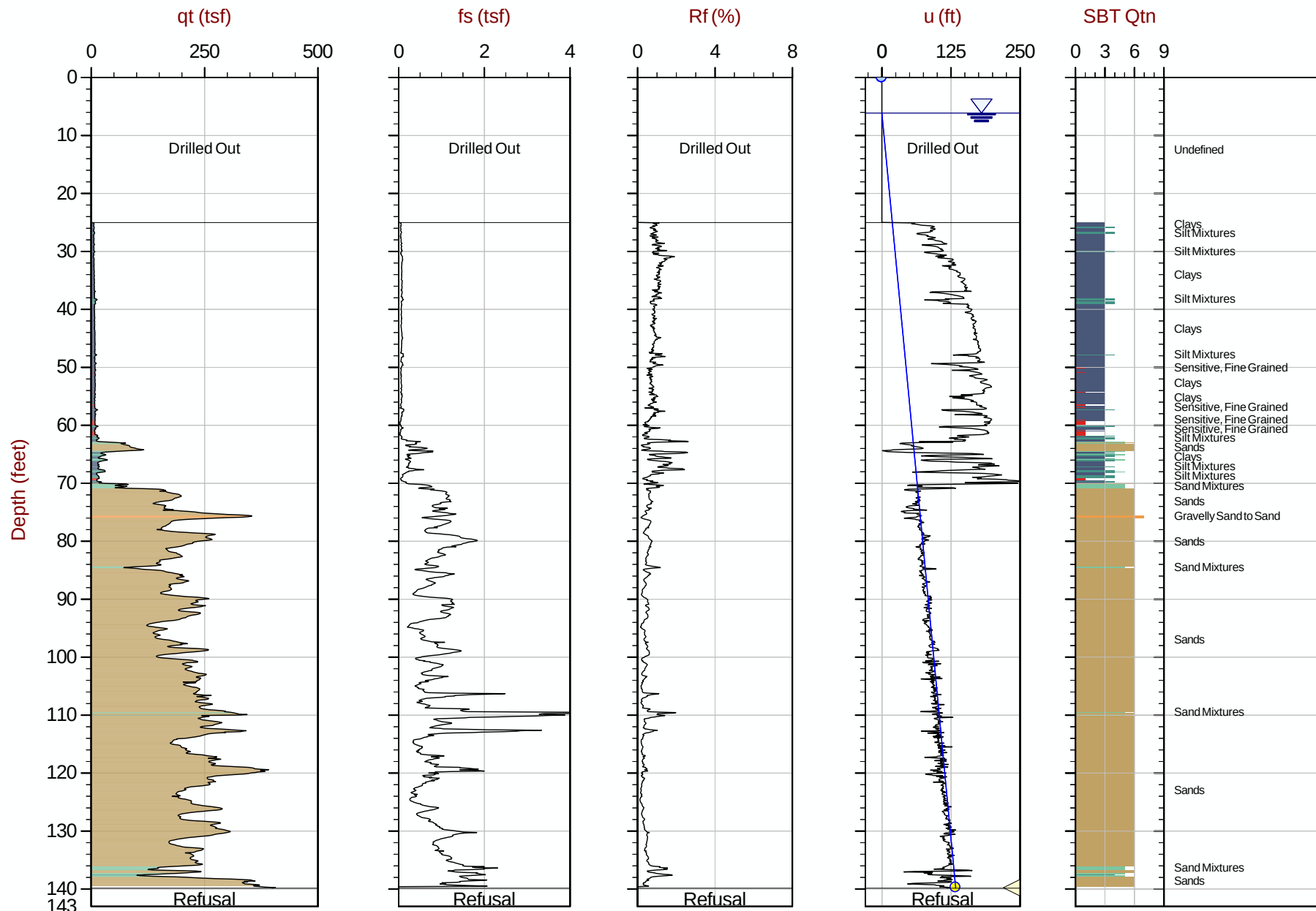
Job No: 18-53107

Date: 2018-09-20 14:41

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-07

Cone: 550:T1500F15U500



Max Depth: 42.625 m / 139.84 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: EveryPoint

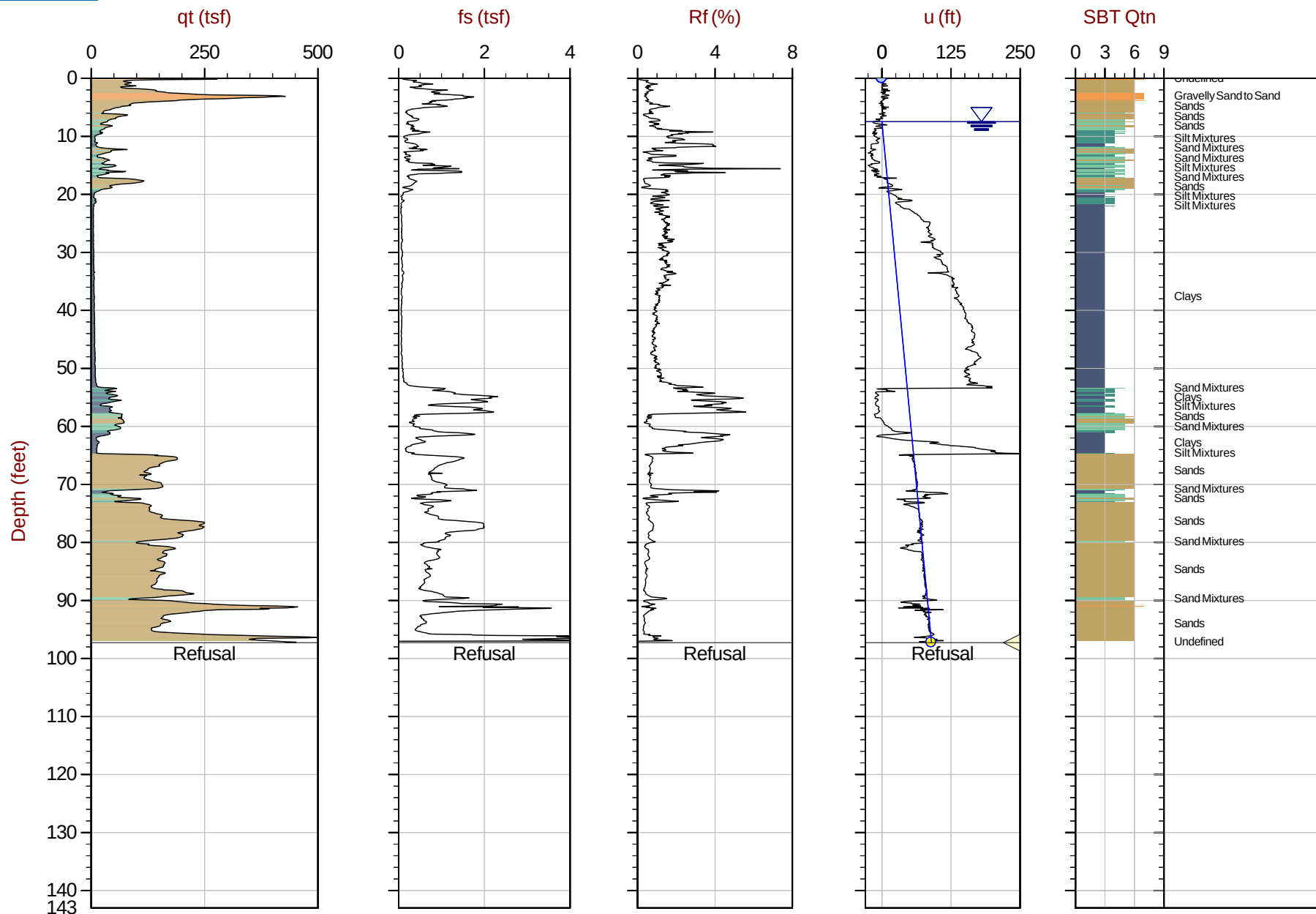
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SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833210m E: 398261m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Max Depth: 29.650 m / 97.28 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: Every Point

File: 18-53107_CP08.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833171m E: 398158m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

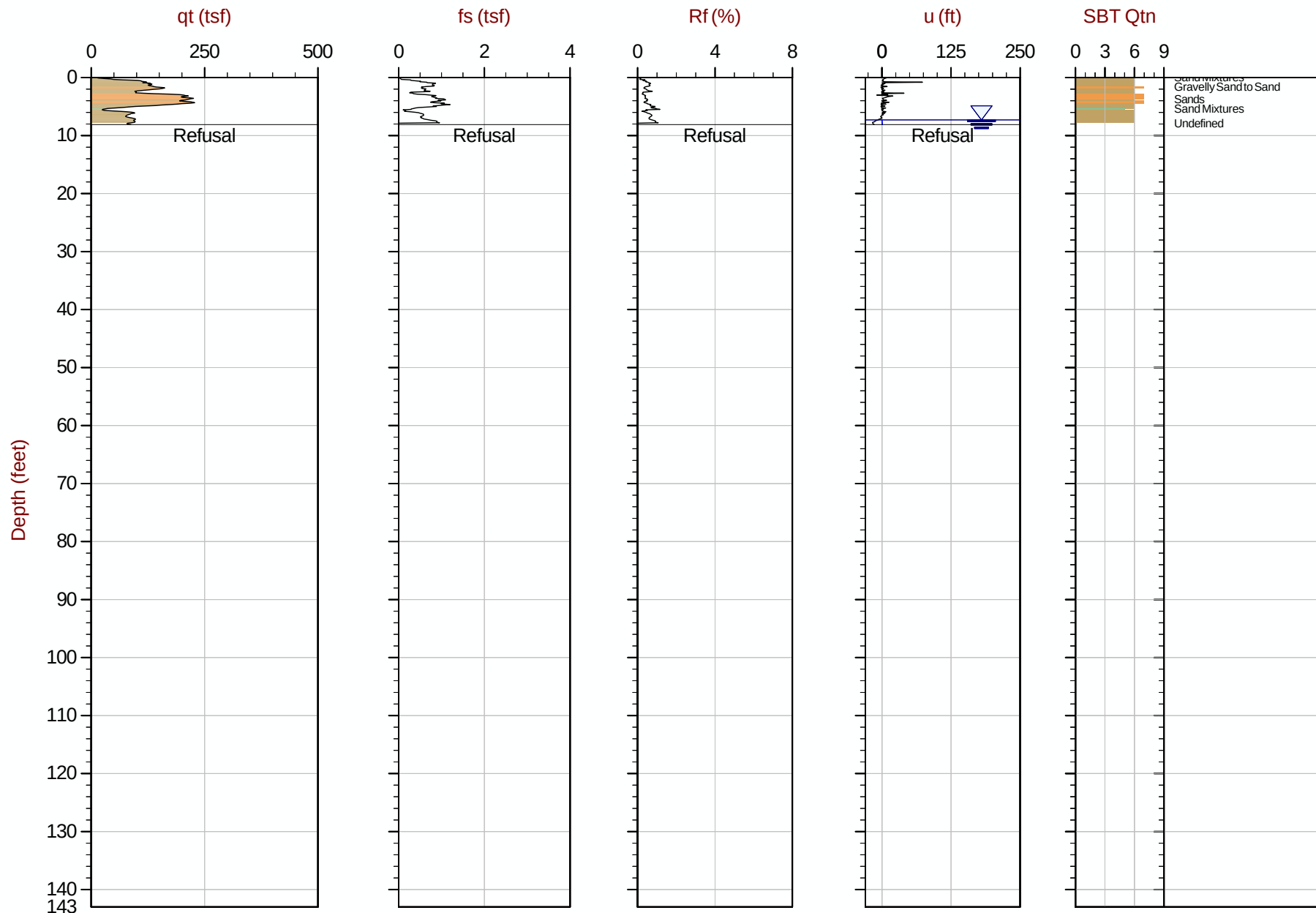
Job No: 18-53107

Date: 2018-09-18 13:58

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-09

Cone: 550:T1500F15U500



Max Depth: 2.475 m / 8.12 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP09.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833163m E: 398187m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

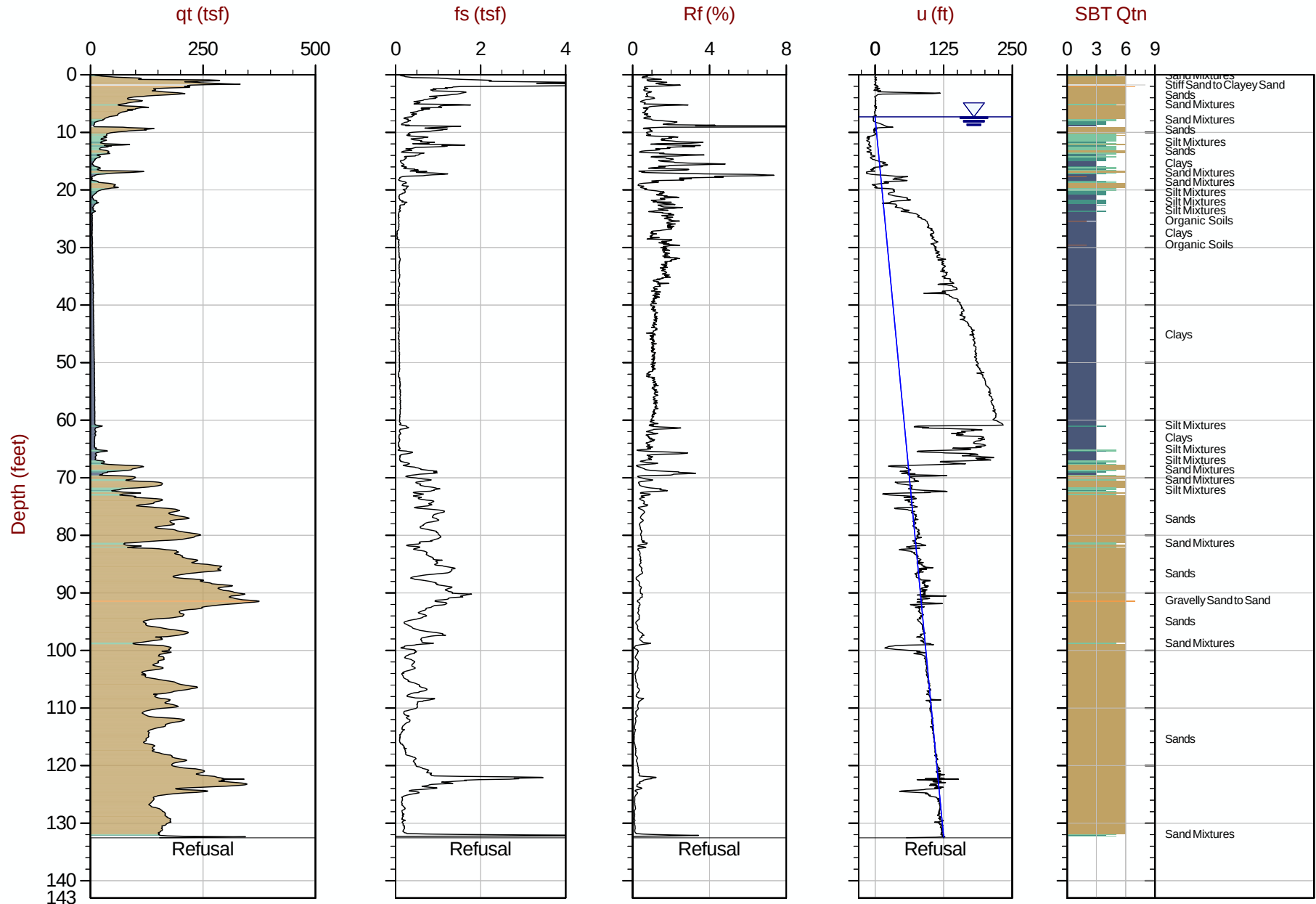
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Date: 2018-09-18 14:11

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-09A

Cone: 550:T1500F15U500



Max Depth: 40.400 m / 132.54 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: EveryPoint

File: 18-53107_CP09A.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833162m E: 398190m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

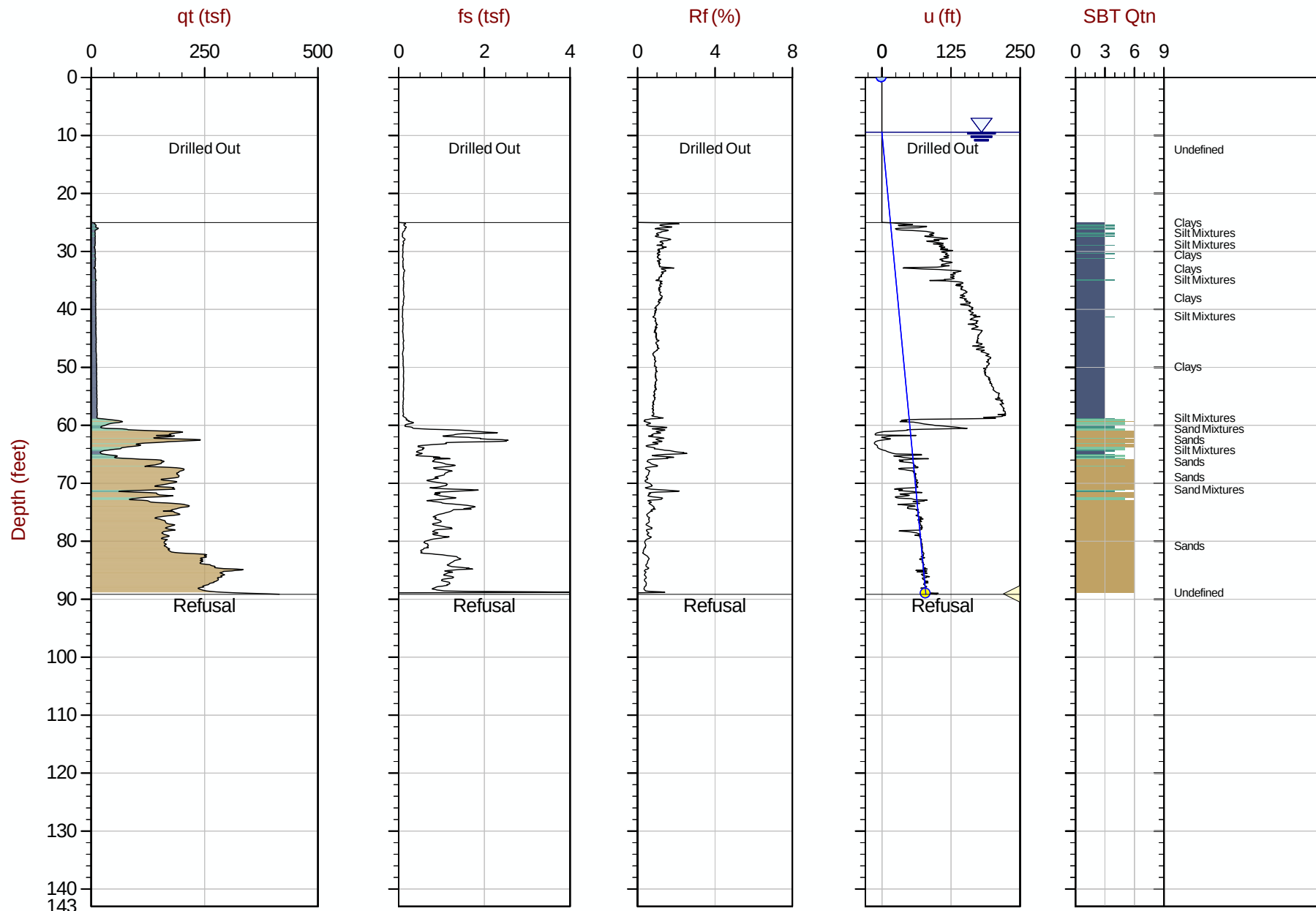
Job No: 18-53107

Date: 2018-09-20 11:42

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-10

Cone: 550:T1500F15U500



Max Depth: 27.175 m / 89.16 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP10.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833181m E: 398234m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

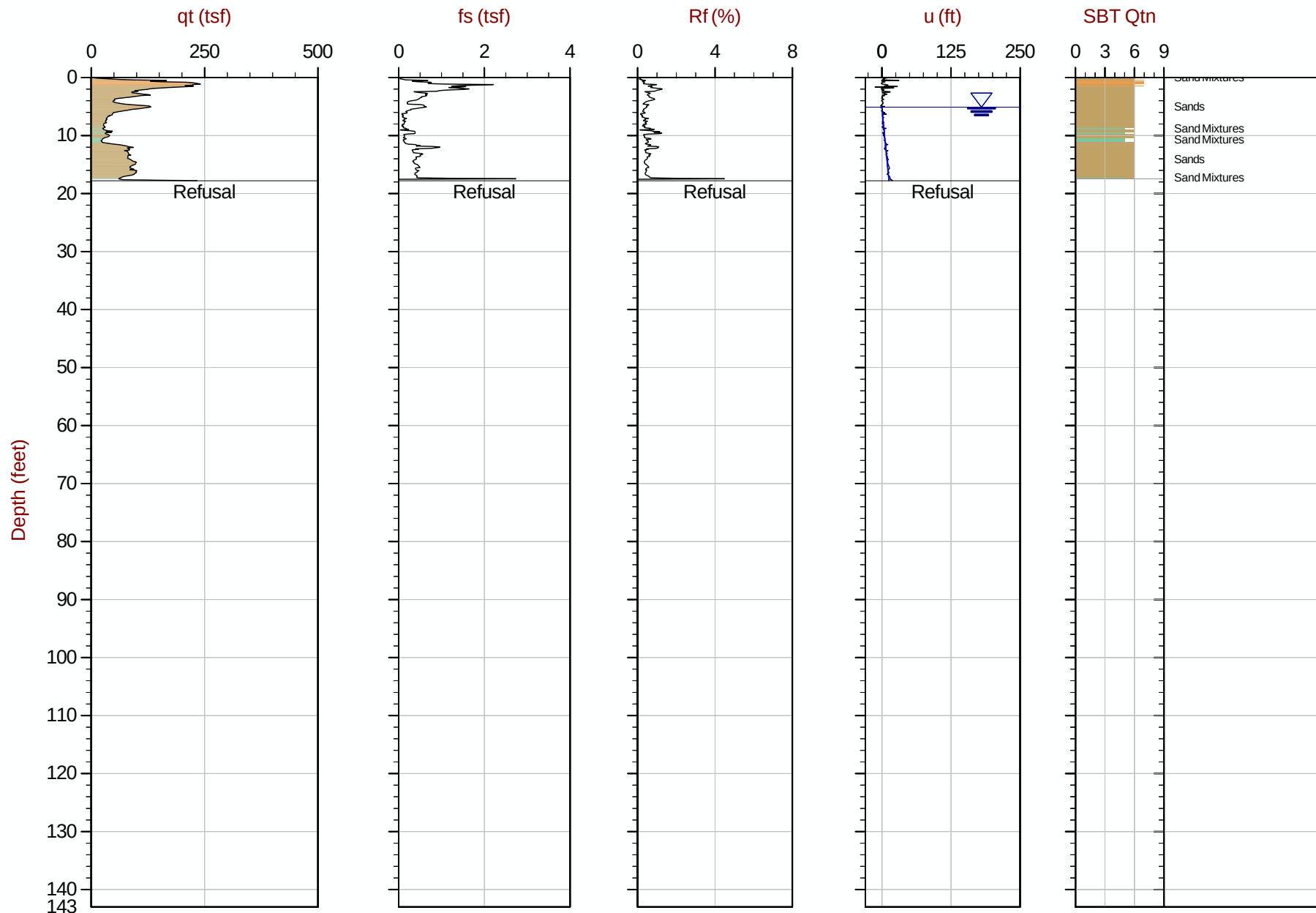
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Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-11

Cone: 550:T1500F15U500



Max Depth: 5.425 m / 17.80 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

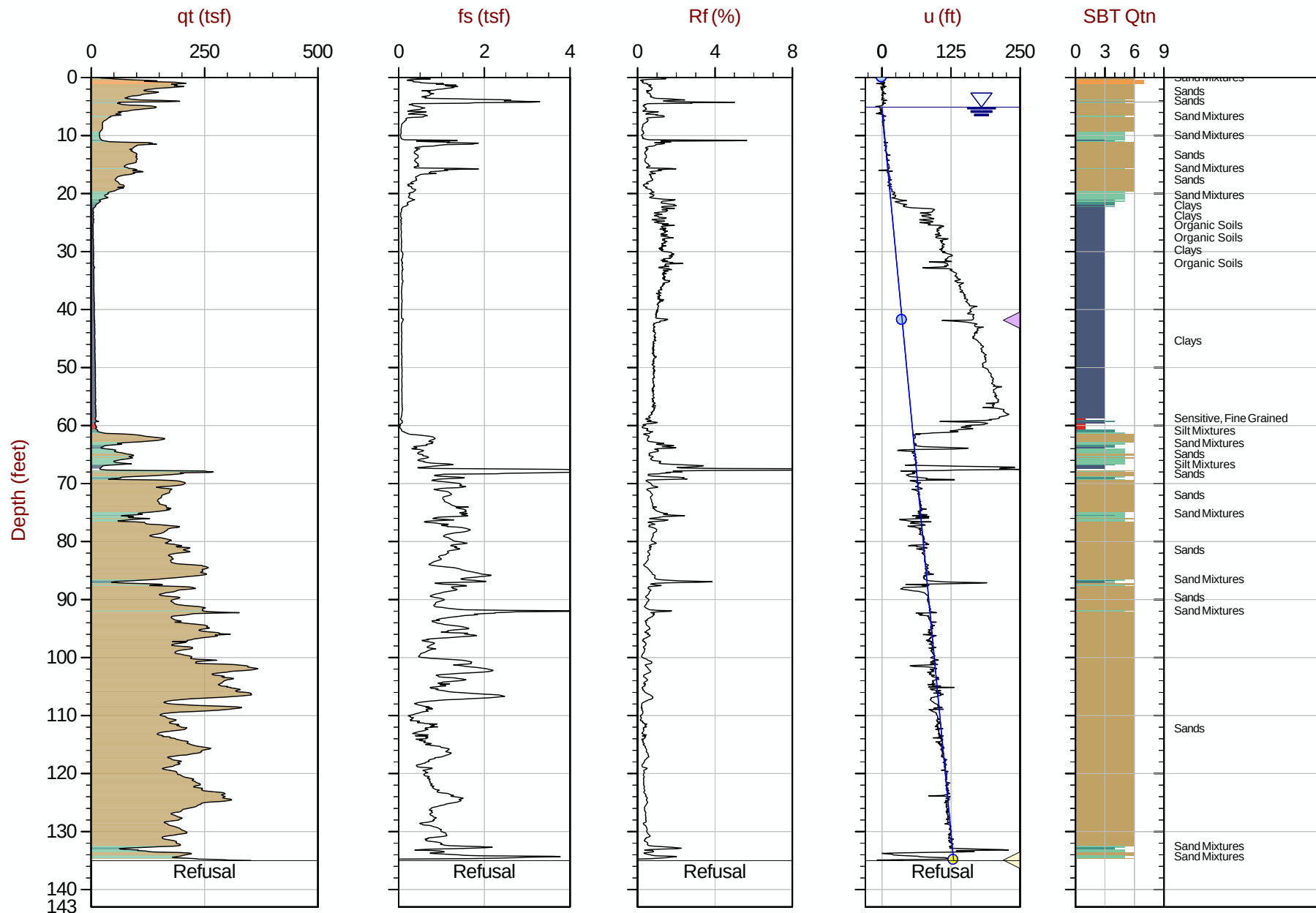
File: 18-53107_CP11.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833184m E: 398275m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Max Depth: 41.150 m / 135.00 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: Every Point

File: 18-53107_CP11A.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833176m E: 398269m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

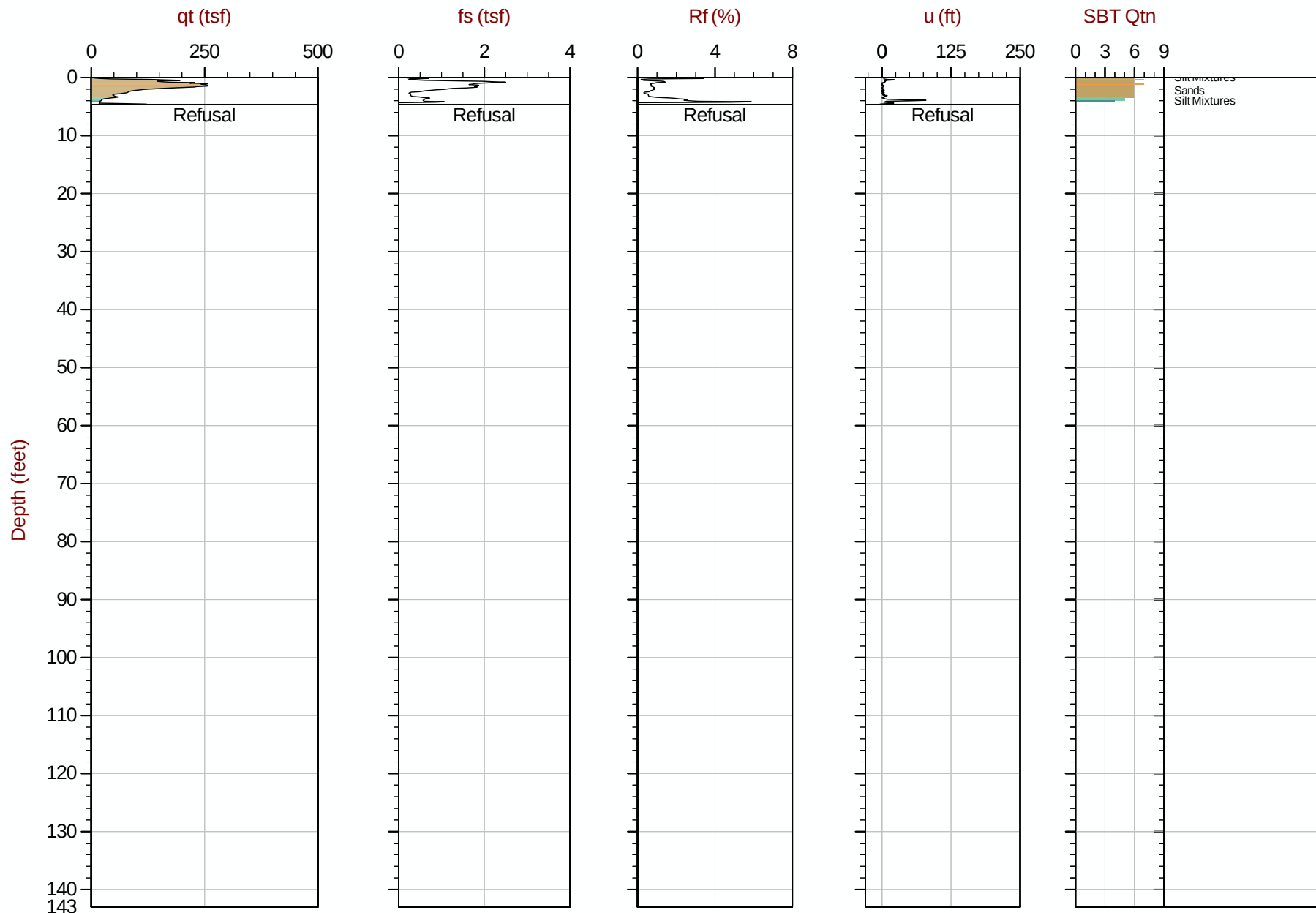
Job No: 18-53107

Date: 2018-09-18 08:04

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-12

Cone: 550:T1500F15U500



Max Depth: 1.400 m / 4.59 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP12.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833126m E: 398203m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

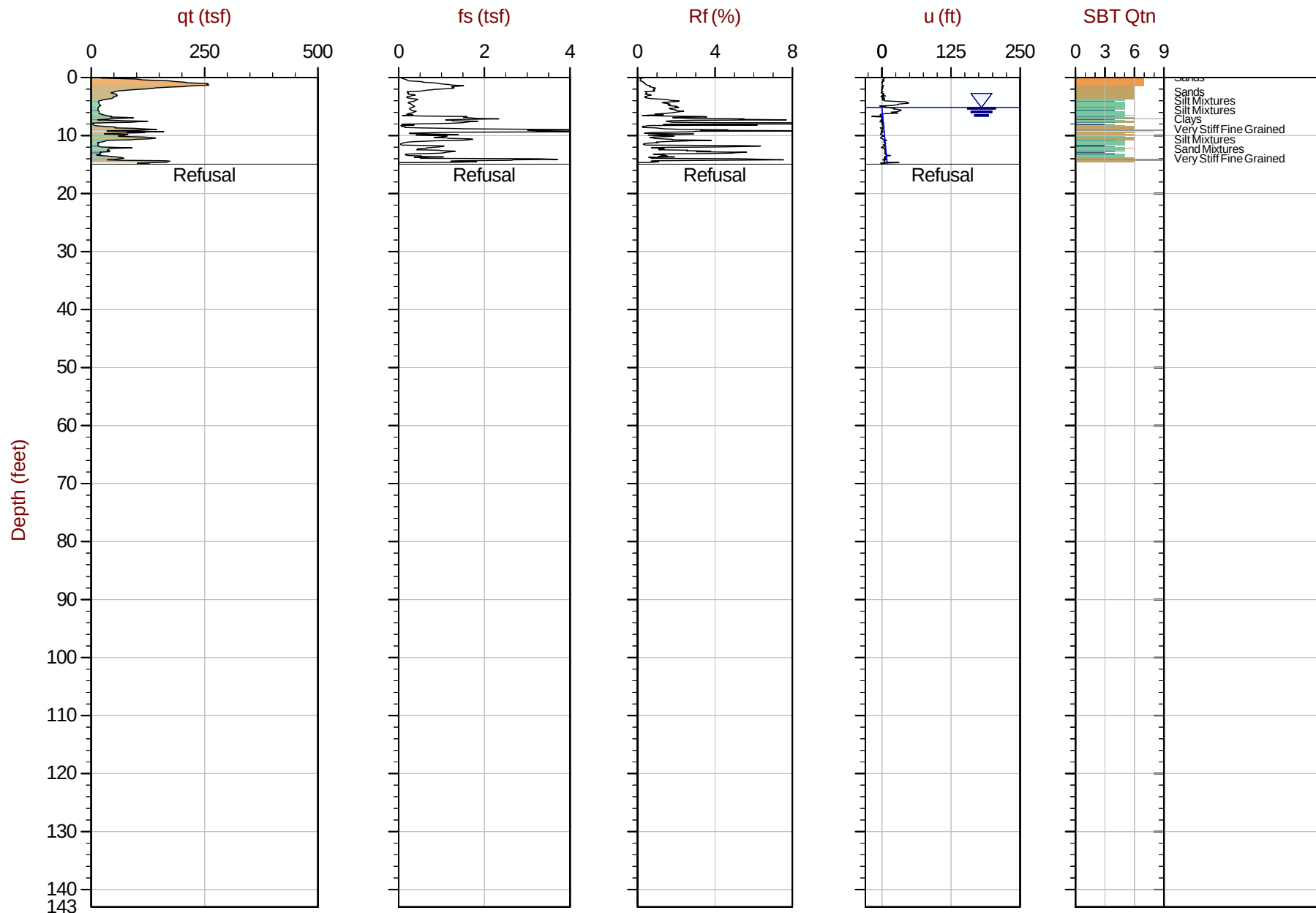
Job No: 18-53107

Date: 2018-09-18 08:23

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-12A

Cone: 550:T1500F15U500



Max Depth: 4.550 m / 14.93 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP12A.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833123m E: 398208m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ▶ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

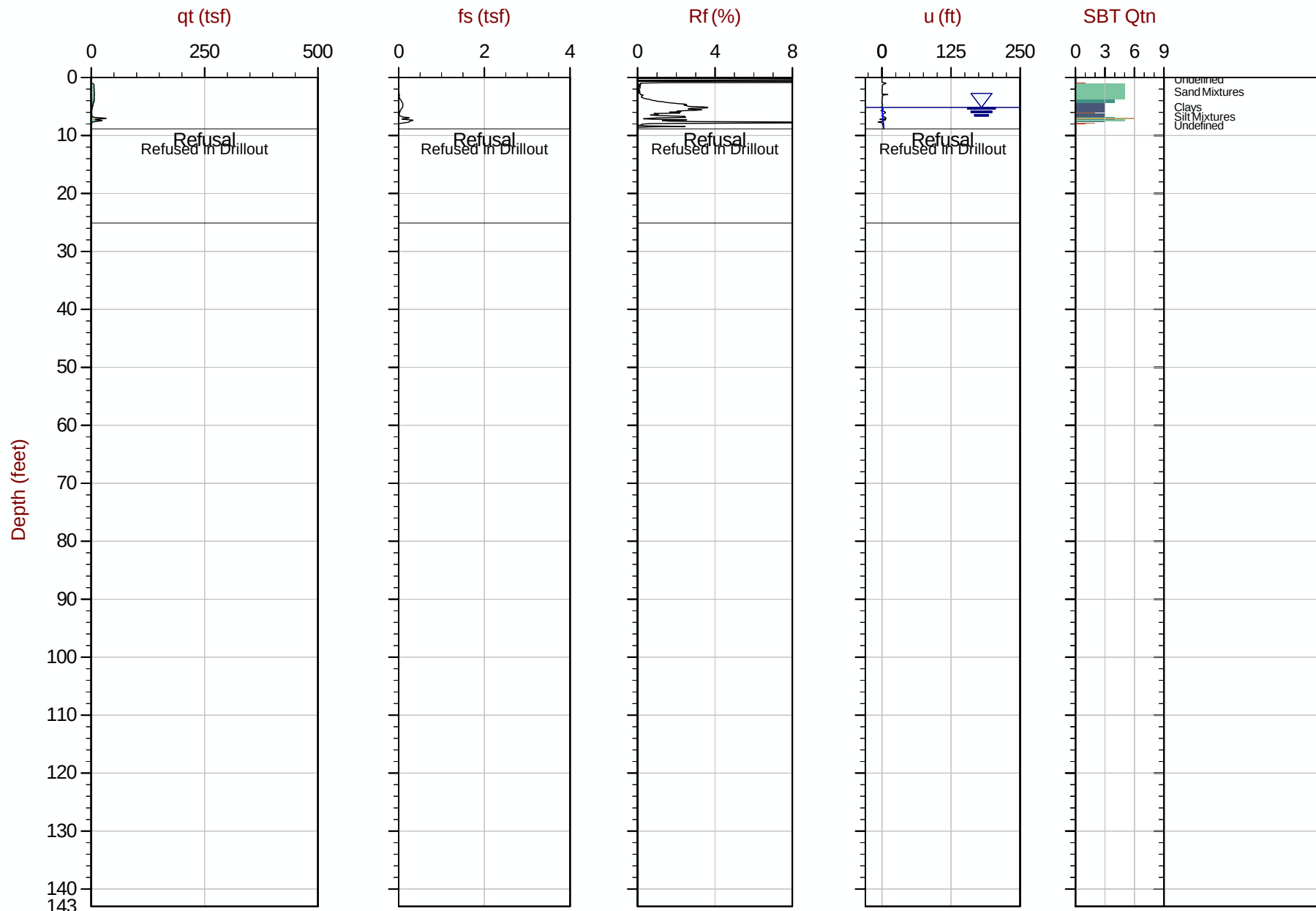
Job No: 18-53107

Date: 2018-09-20 08:17

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-12B

Cone: 550:T1500F15U500



Max Depth: 2.700 m / 8.86 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP12B.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833125m E: 398209m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

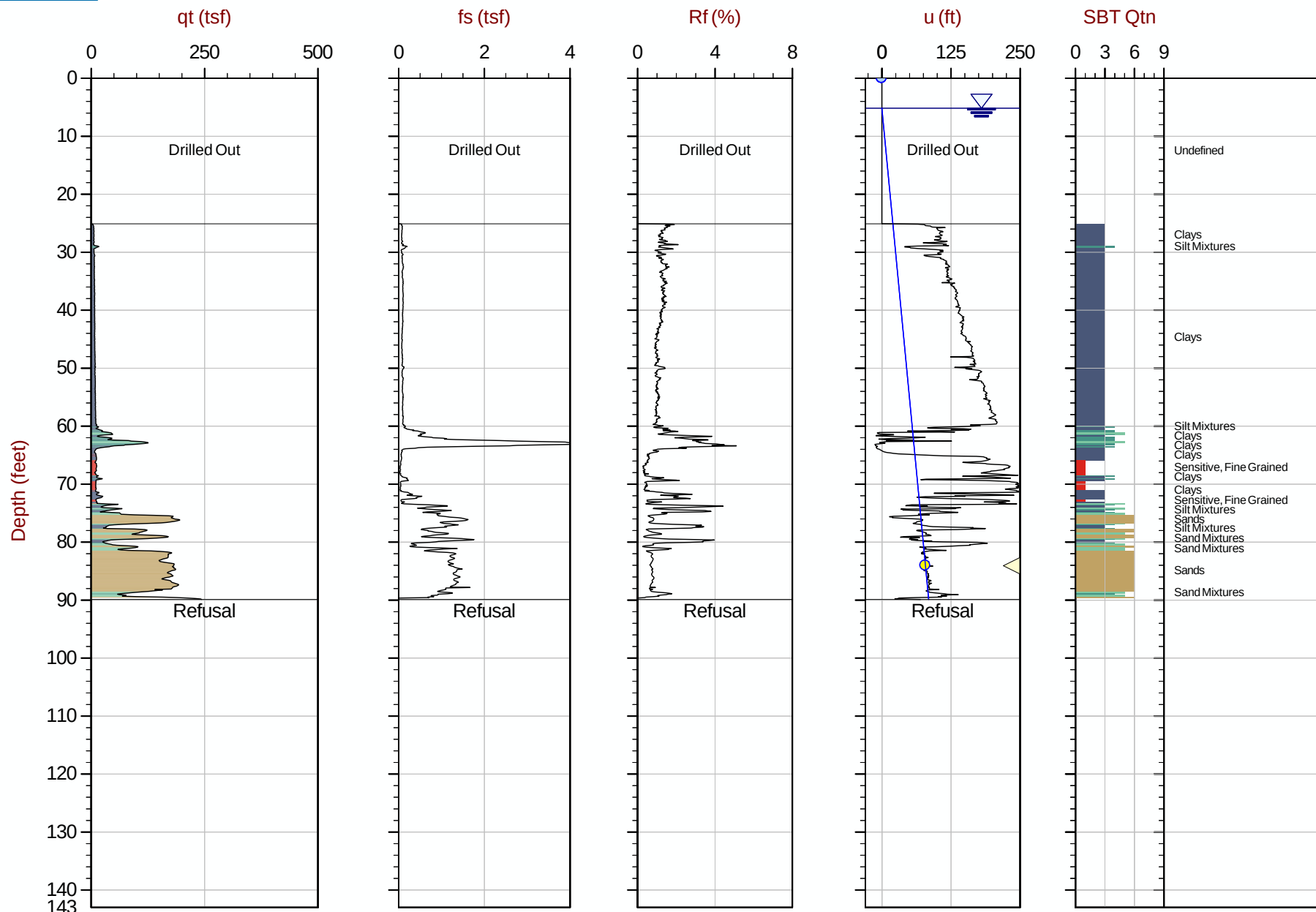
Job No: 18-53107

Date: 2018-09-20 08:30

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-12C

Cone: 550:T1500F15U500



Max Depth: 27.400 m / 89.89 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP12C.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833125m E: 398209m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

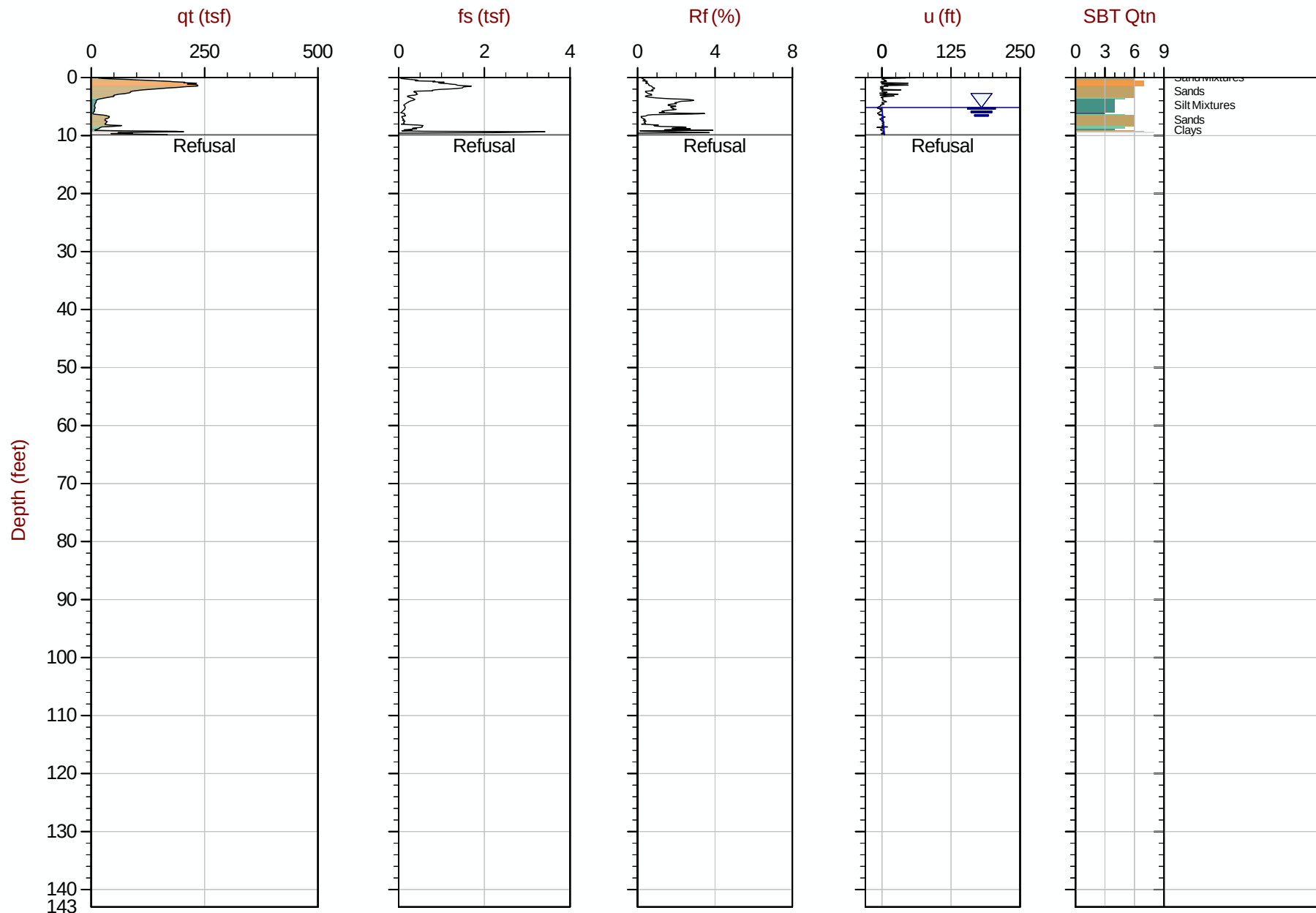
Job No: 18-53107

Date: 2018-09-20 10:56

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-12D

Cone: 550:T1500F15U500



Max Depth: 3.000 m / 9.84 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP12D.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833121m E: 398204m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

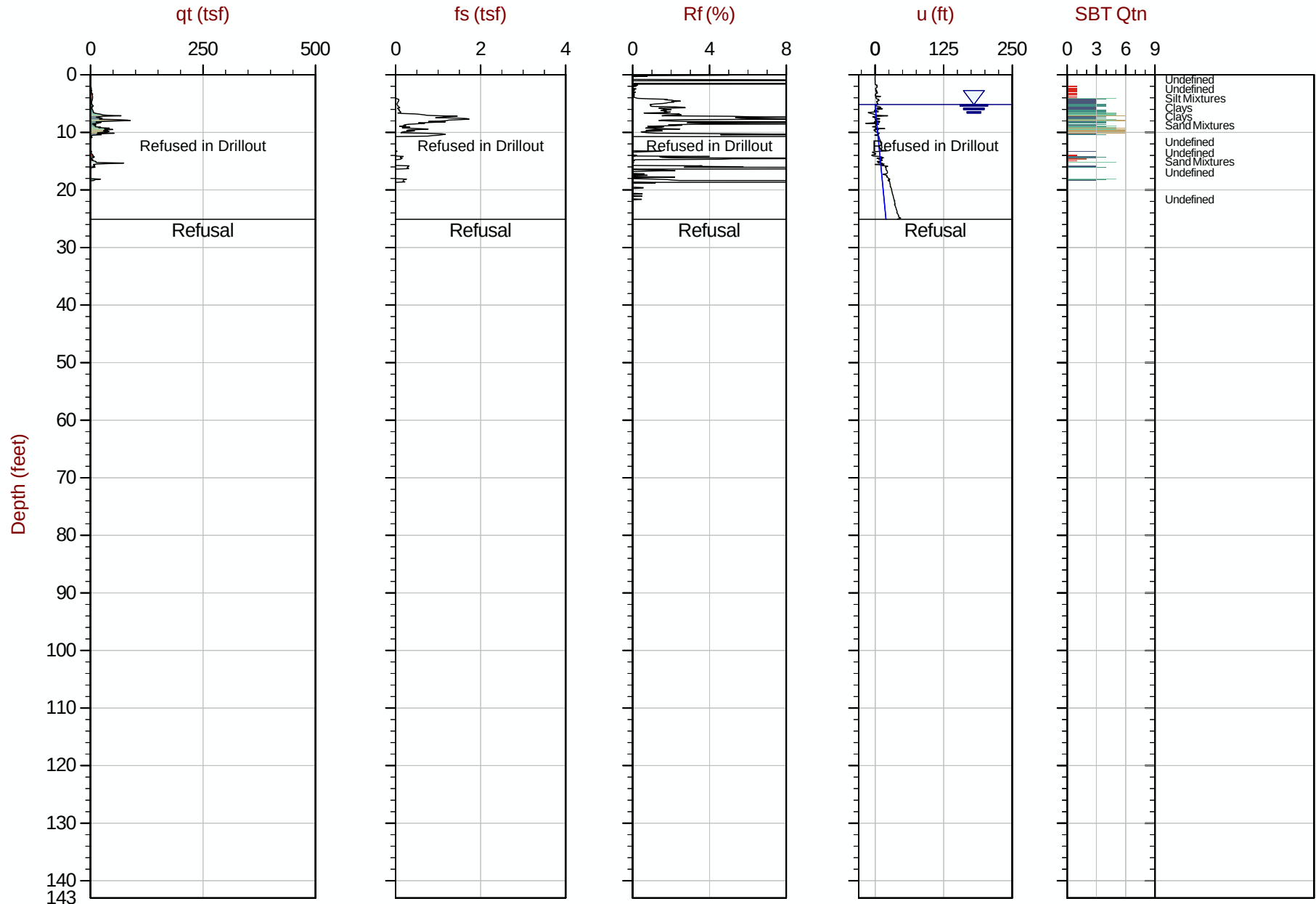
Job No: 18-53107

Date: 2018-09-21 12:14

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-12E

Cone: 550:T1500F15U500



Max Depth: 7.650 m / 25.10 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: Every Point

File: 18-53107_CP12E.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833121m E: 398207m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

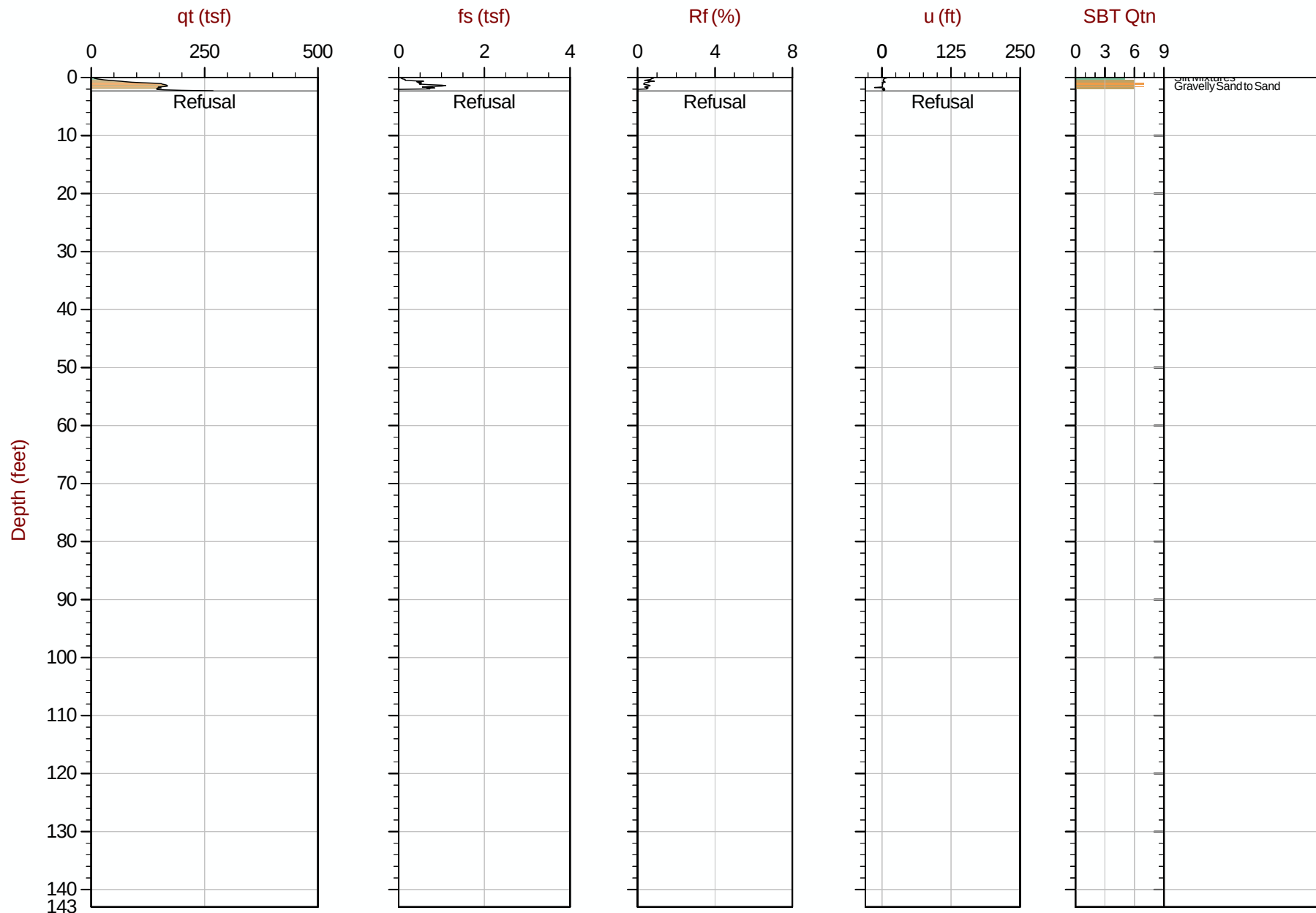
Job No: 18-53107

Date: 2018-09-18 08:57

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-14

Cone: 550:T1500F15U500



Max Depth: 0.700 m / 2.30 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP14.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833140m E: 398292m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

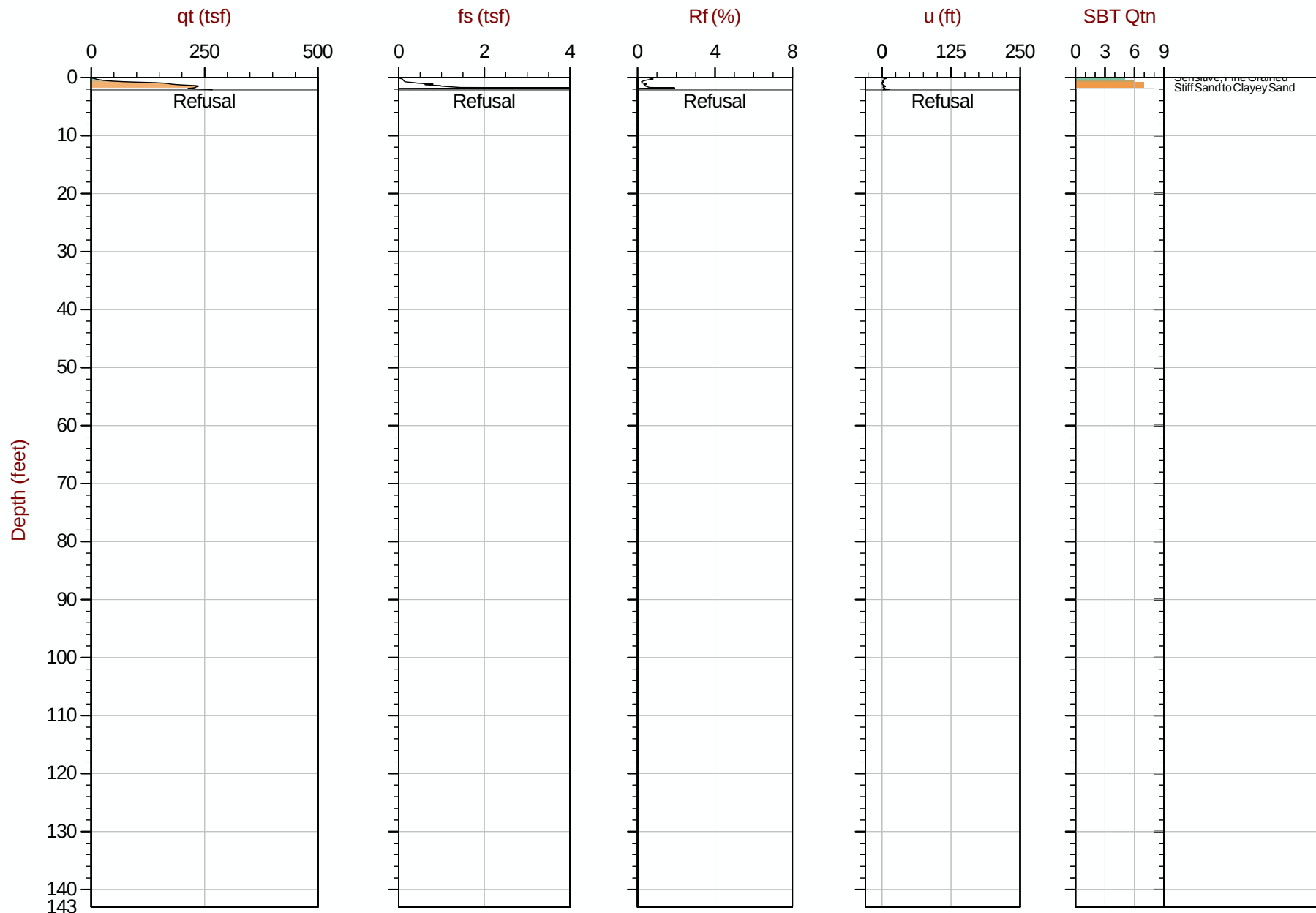
Job No: 18-53107

Date: 2018-09-18 09:11

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-14A

Cone: 550:T1500F15U500



Max Depth: 0.650 m / 2.13 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP14A.COR

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833137m E: 398285m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

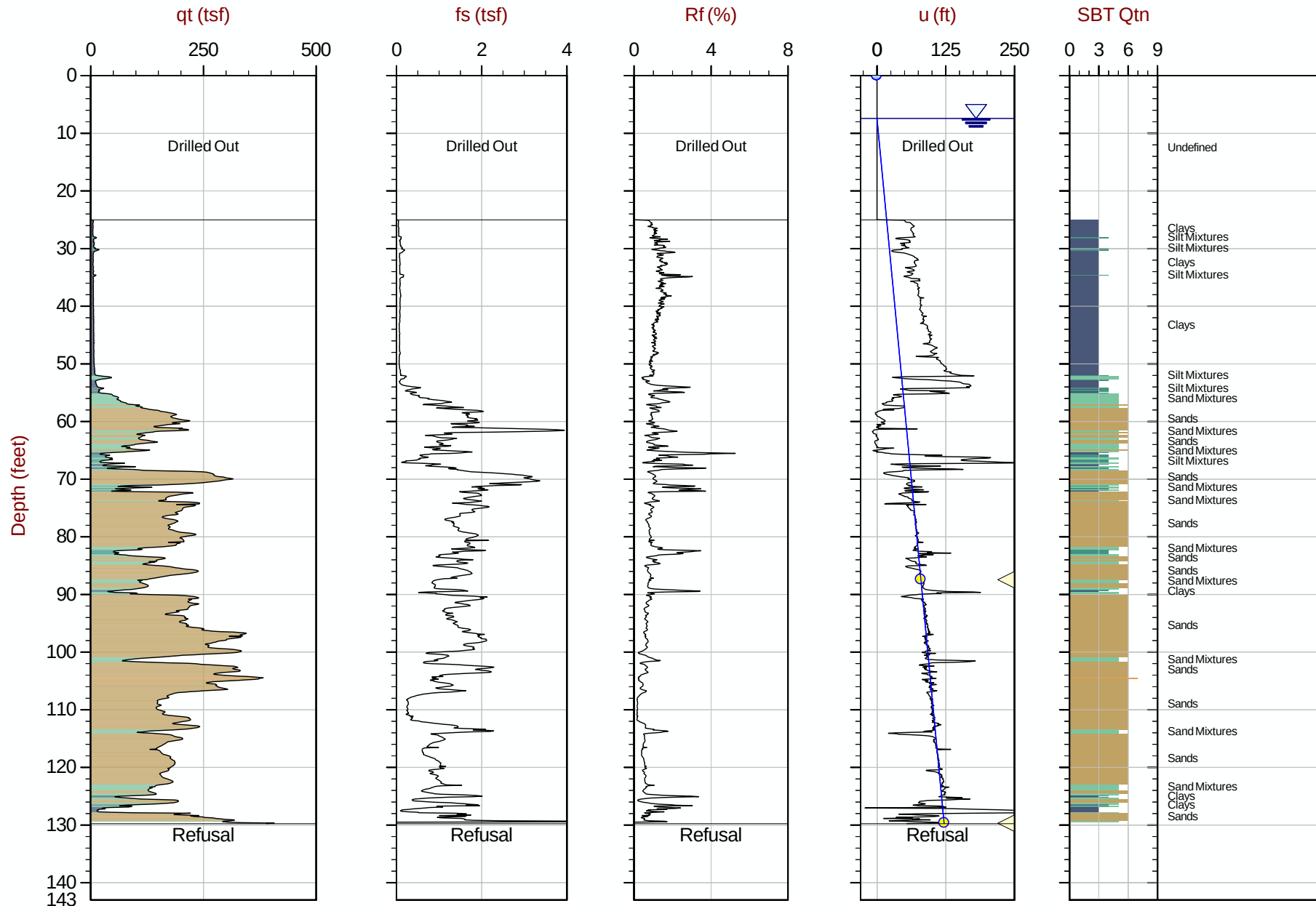
Job No: 18-53107

Date: 2018-09-20 04:17

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-14B

Cone: 550:T1500F15U500



Max Depth: 39.550 m / 129.76 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: Every Point

File: 18-53107_CP14B.COR

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833133m E: 398281m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Advanced Cone Penetration Test Plots



SW Cole Engineering

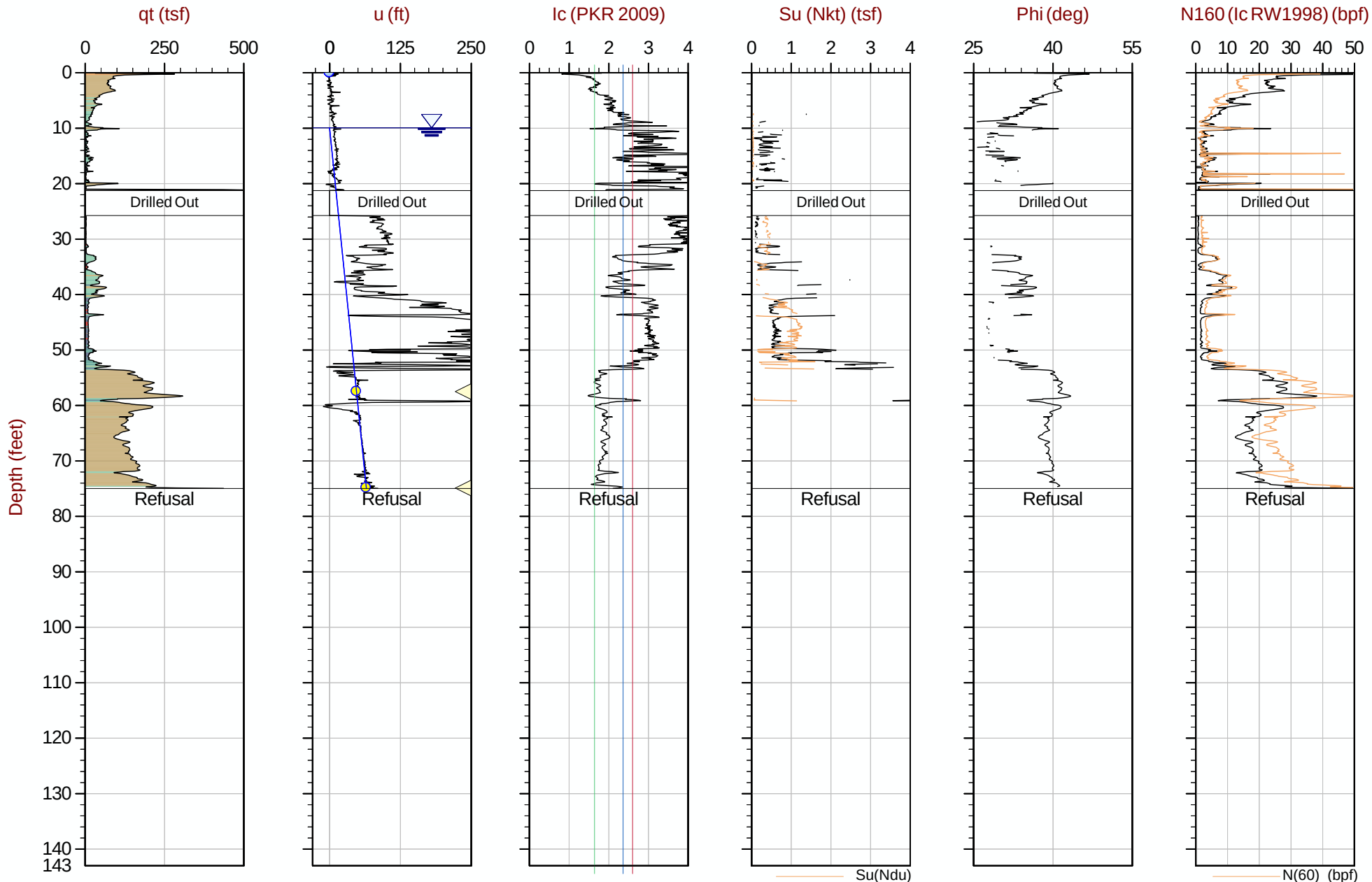
Job No: 18-53107

Date: 2018-09-19 23:26

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-02

Cone: 550:T1500F15U500



Max Depth: 22.850 m / 74.97 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP02.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833219m E: 398173m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

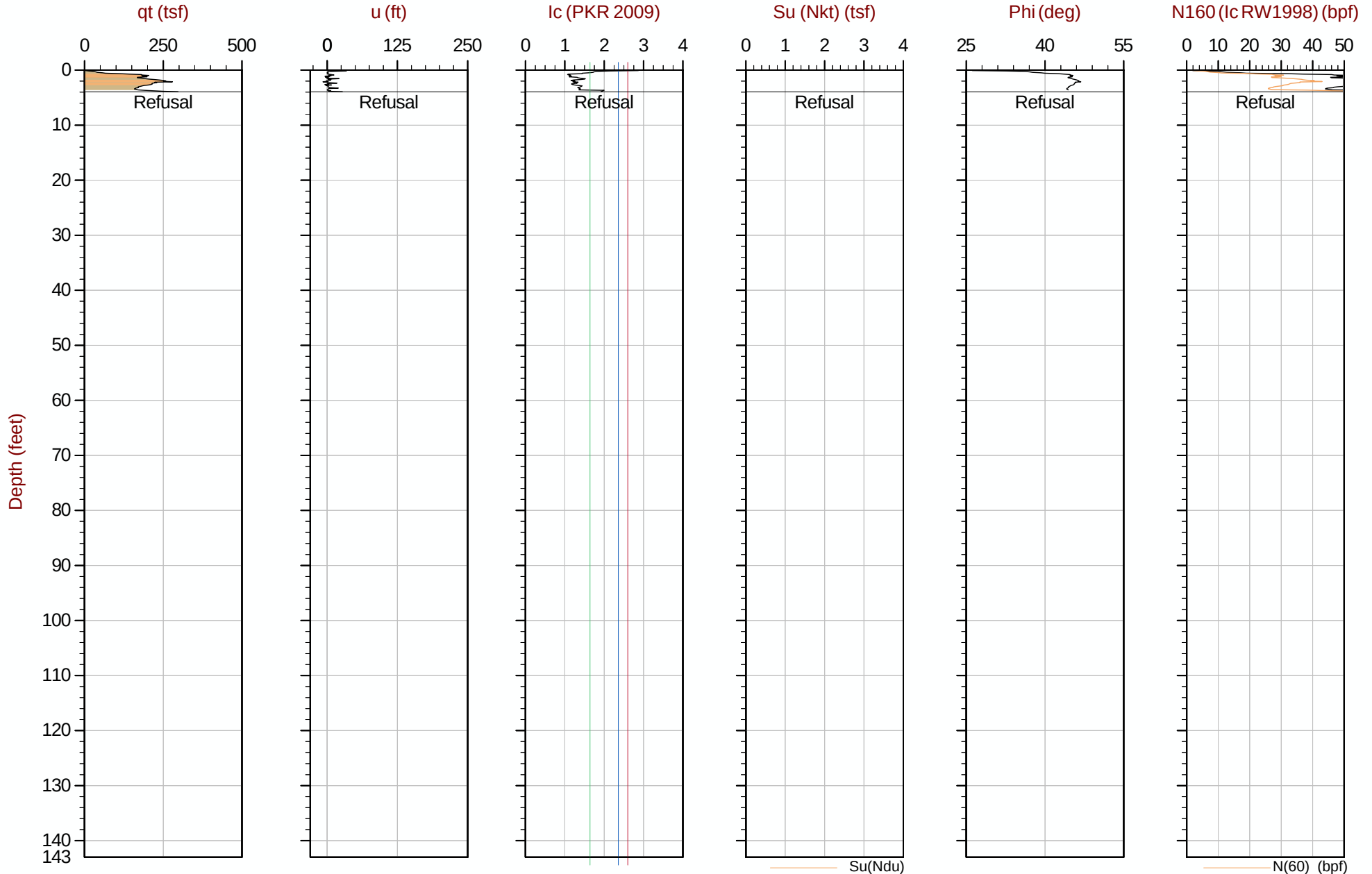
Job No: 18-53107

Date: 2018-09-19 19:58

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-04

Cone: 550:T1500F15U500



Max Depth: 1.200 m / 3.94 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP04.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833244m E: 398243m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

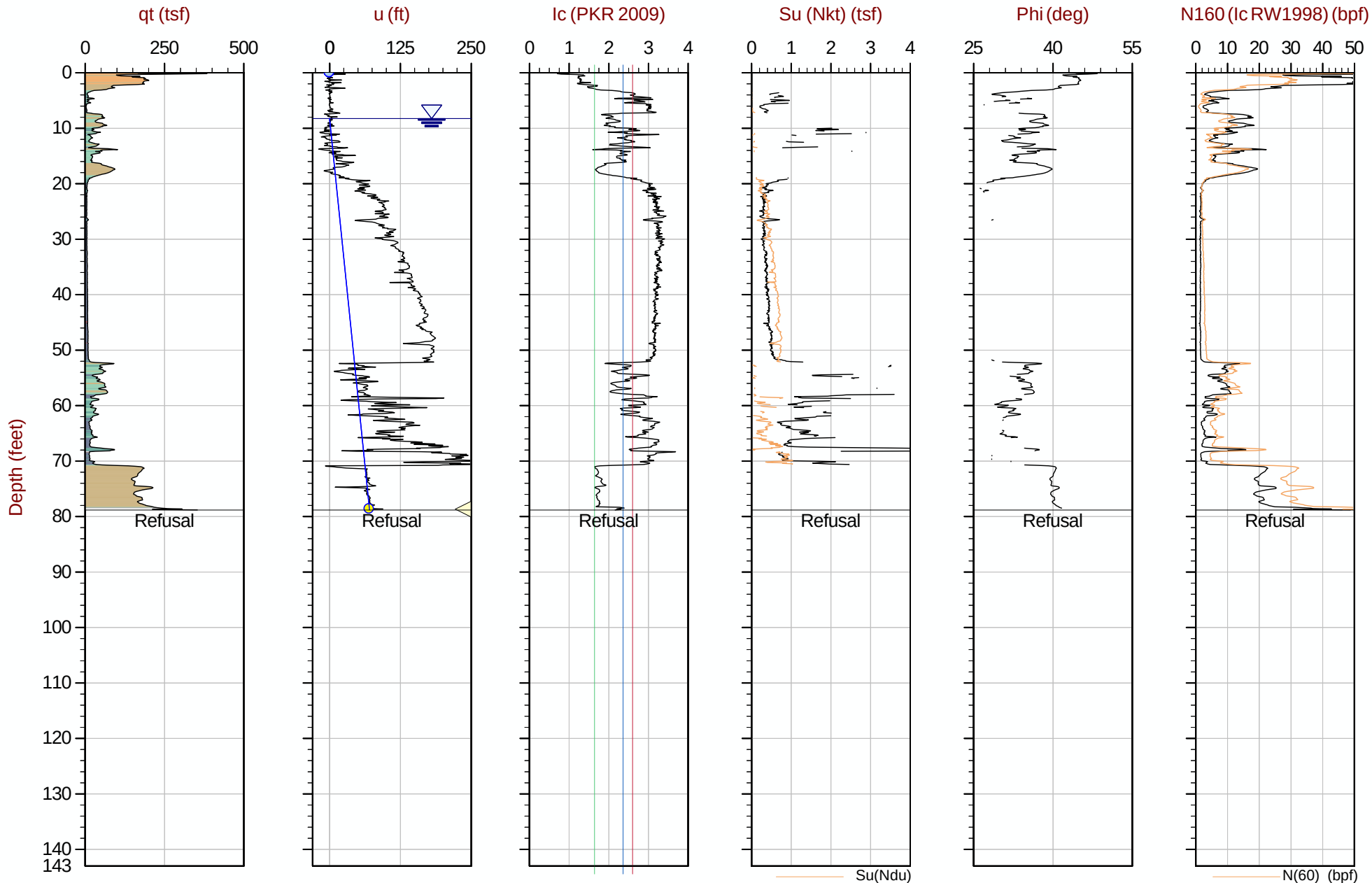
Job No: 18-53107

Date: 2018-09-21 13:14

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-05

Cone: 550:T1500F15U500



Max Depth: 24.025 m / 78.82 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP05.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833191m E: 398170m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

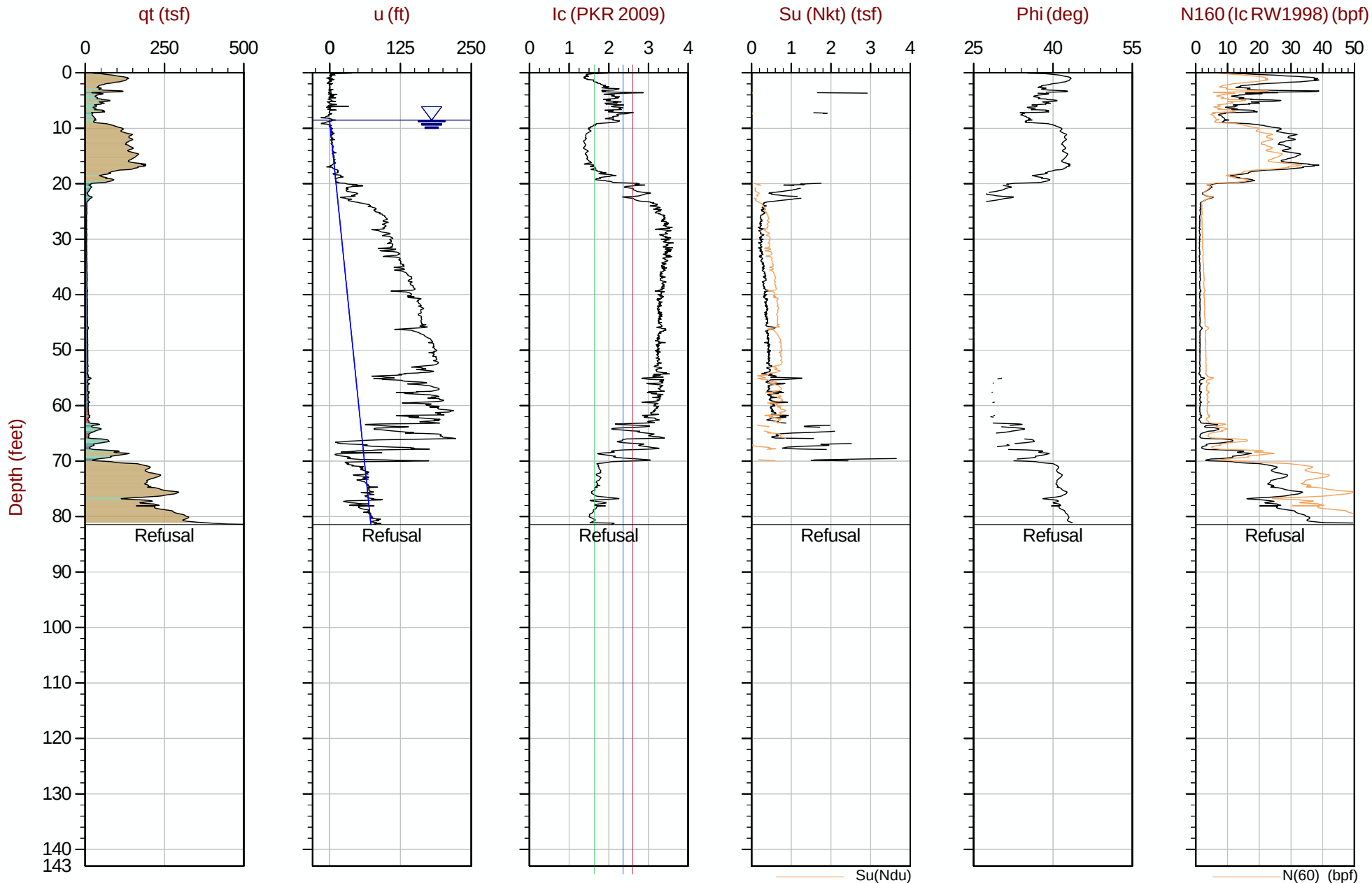
Job No: 18-53107

Date: 2018-09-19 20:48

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-06

Cone: 550:T1500F15U500



Max Depth: 24.825 m / 81.45 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: EveryPoint

File: 18-53107_CP06.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833201m E: 398222m

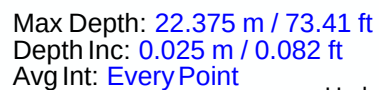
Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



Site: Cold Storage Warehouse, Portland, ME

Cone: 550:T1500F15U500



File: 18-53107_CP06A.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833203m E: 398217m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

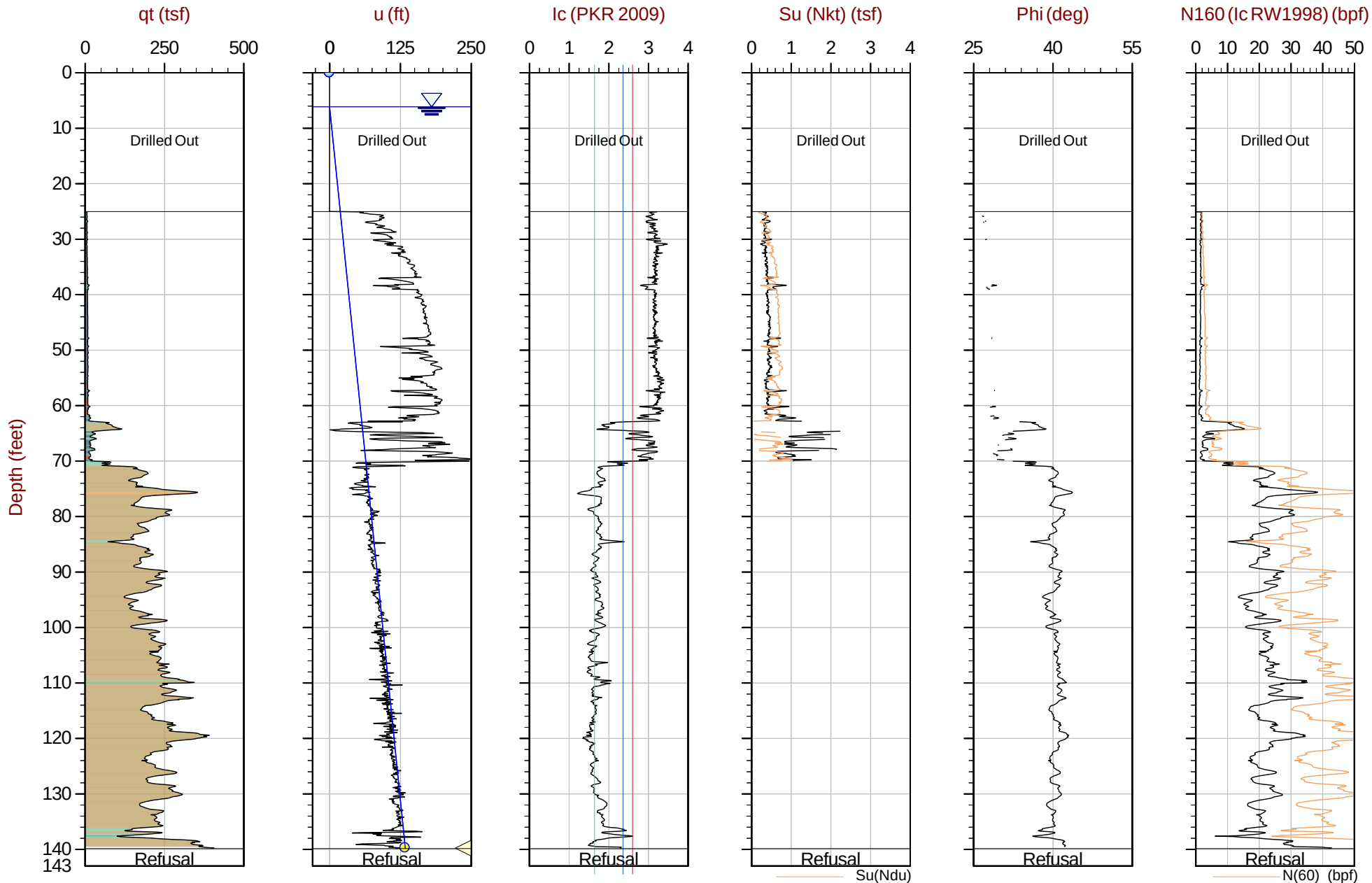
Job No: 18-53107

Date: 2018-09-20 14:41

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-07

Cone: 550:T1500F15U500



Max Depth: 42.625 m / 139.84 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: EveryPoint

File: 18-53107_CP07.COR

Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833210m E: 398261m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

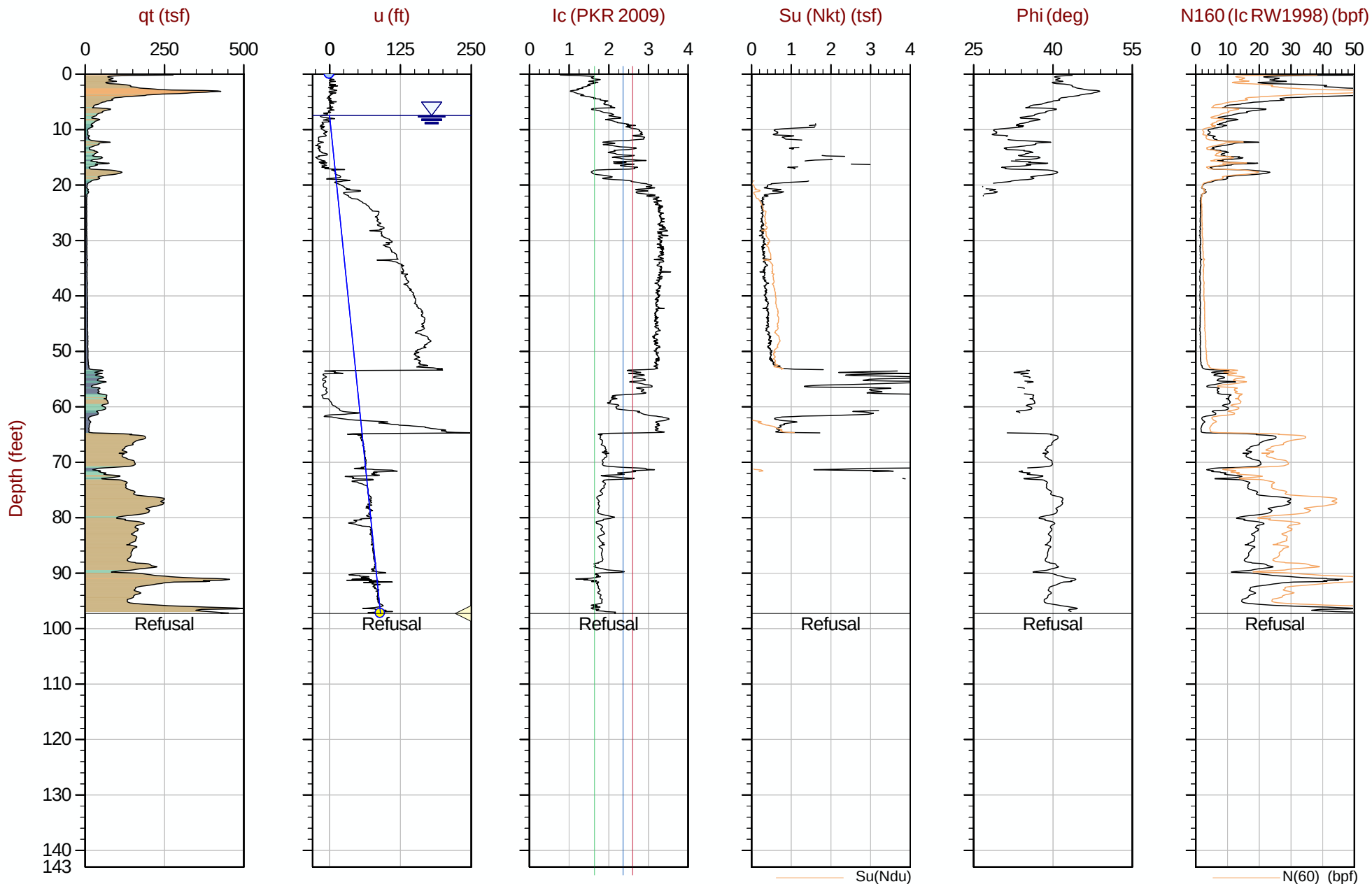
Job No: 18-53107

Date: 2018-09-21 14:51

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-08

Cone: 550:T1500F15U500



Max Depth: 29.650 m / 97.28 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: EveryPoint

File: 18-53107_CP08.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833171m E: 398158m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

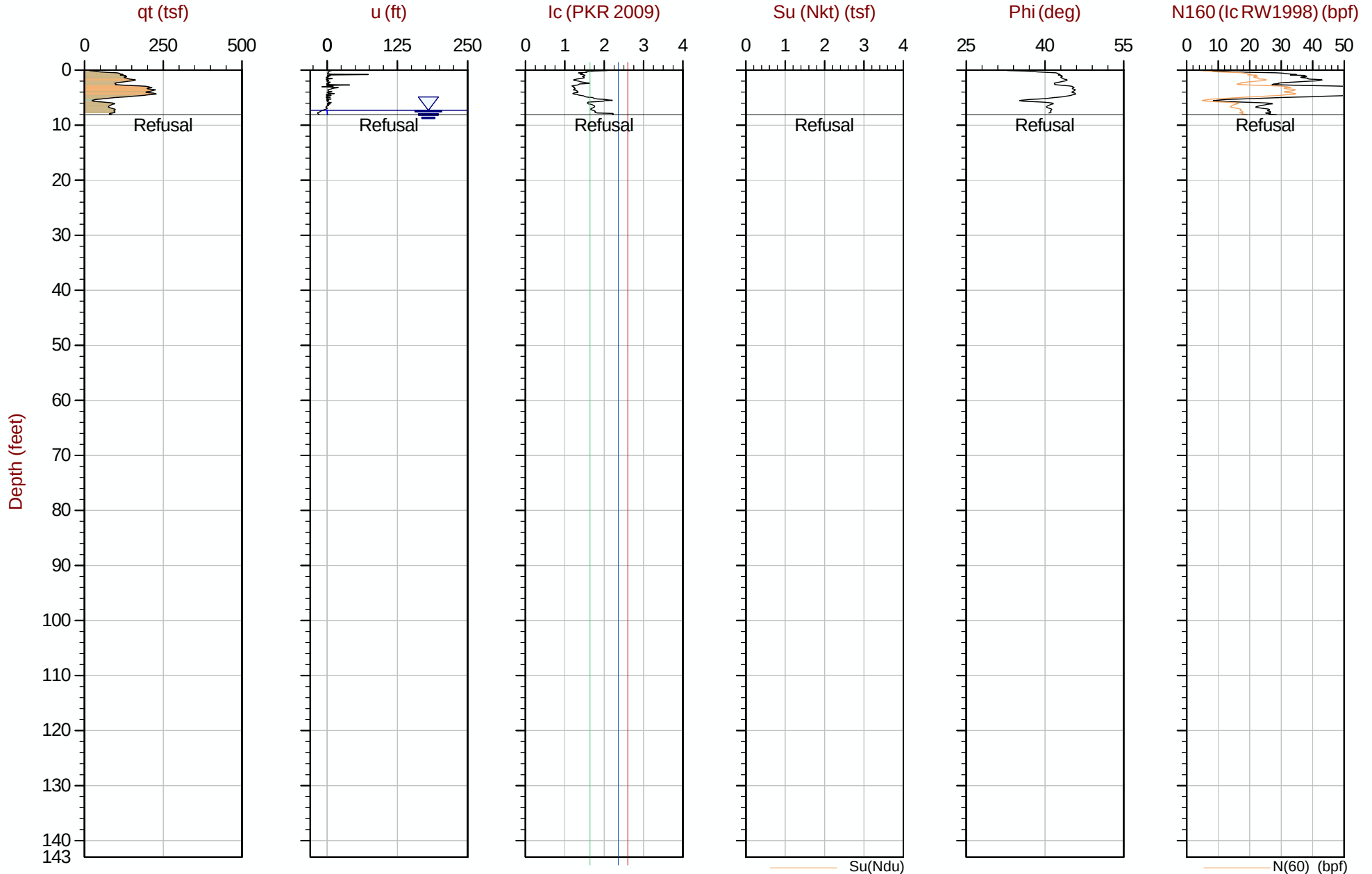
Job No: 18-53107

Date: 2018-09-18 13:58

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-09

Cone: 550:T1500F15U500



Max Depth: 2.475 m / 8.12 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP09.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833163m E: 398187m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

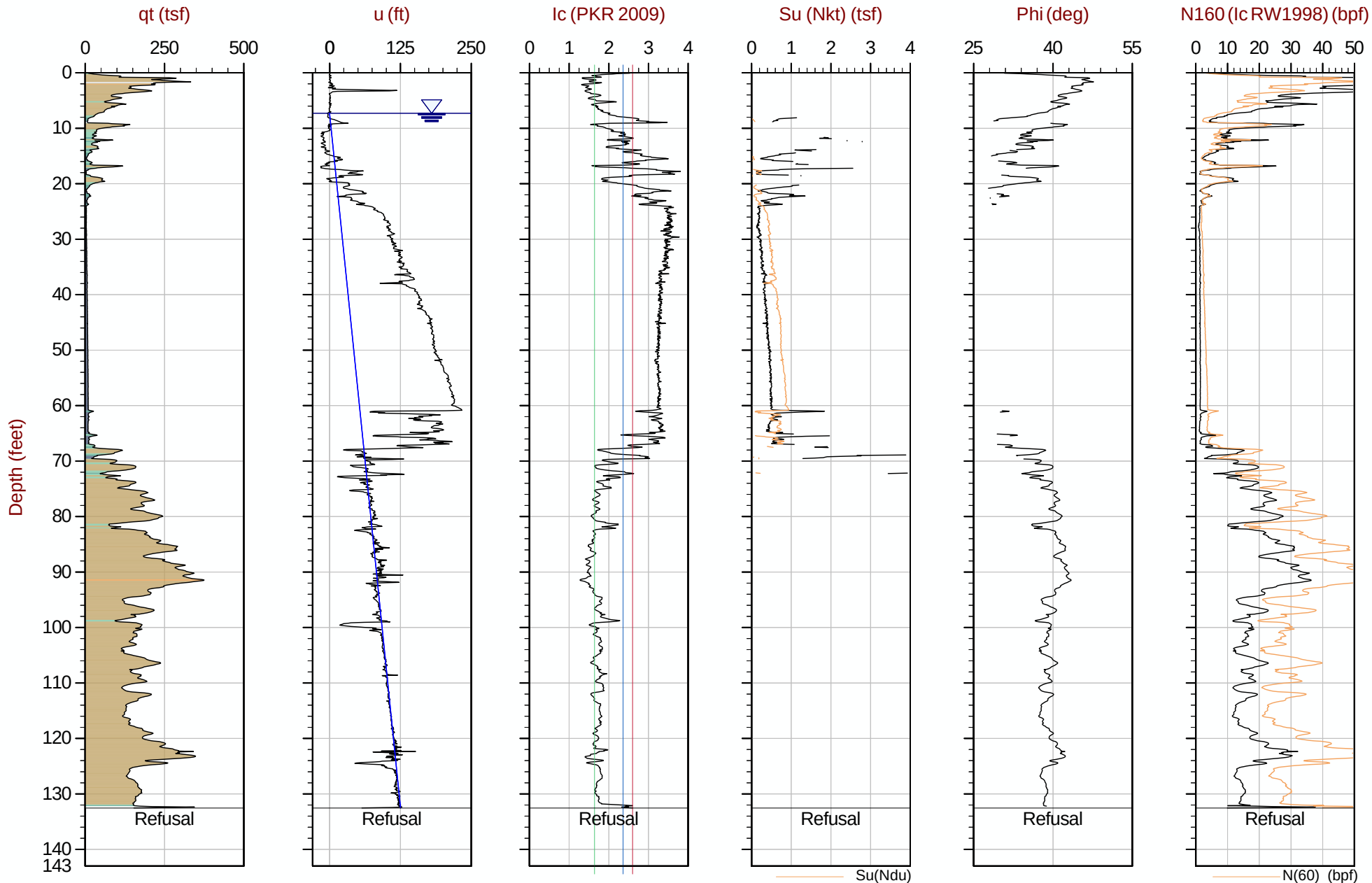
Job No: 18-53107

Date: 2018-09-18 14:11

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-09A

Cone: 550:T1500F15U500



Max Depth: 40.400 m / 132.54 ft

Depth Inc: 0.025 m / 0.082 ft

Avg Int: Every Point

File: 18-53107_CP09A.COR

Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010

Coords: UTM Zone 19 N: 4833162m E: 398190m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

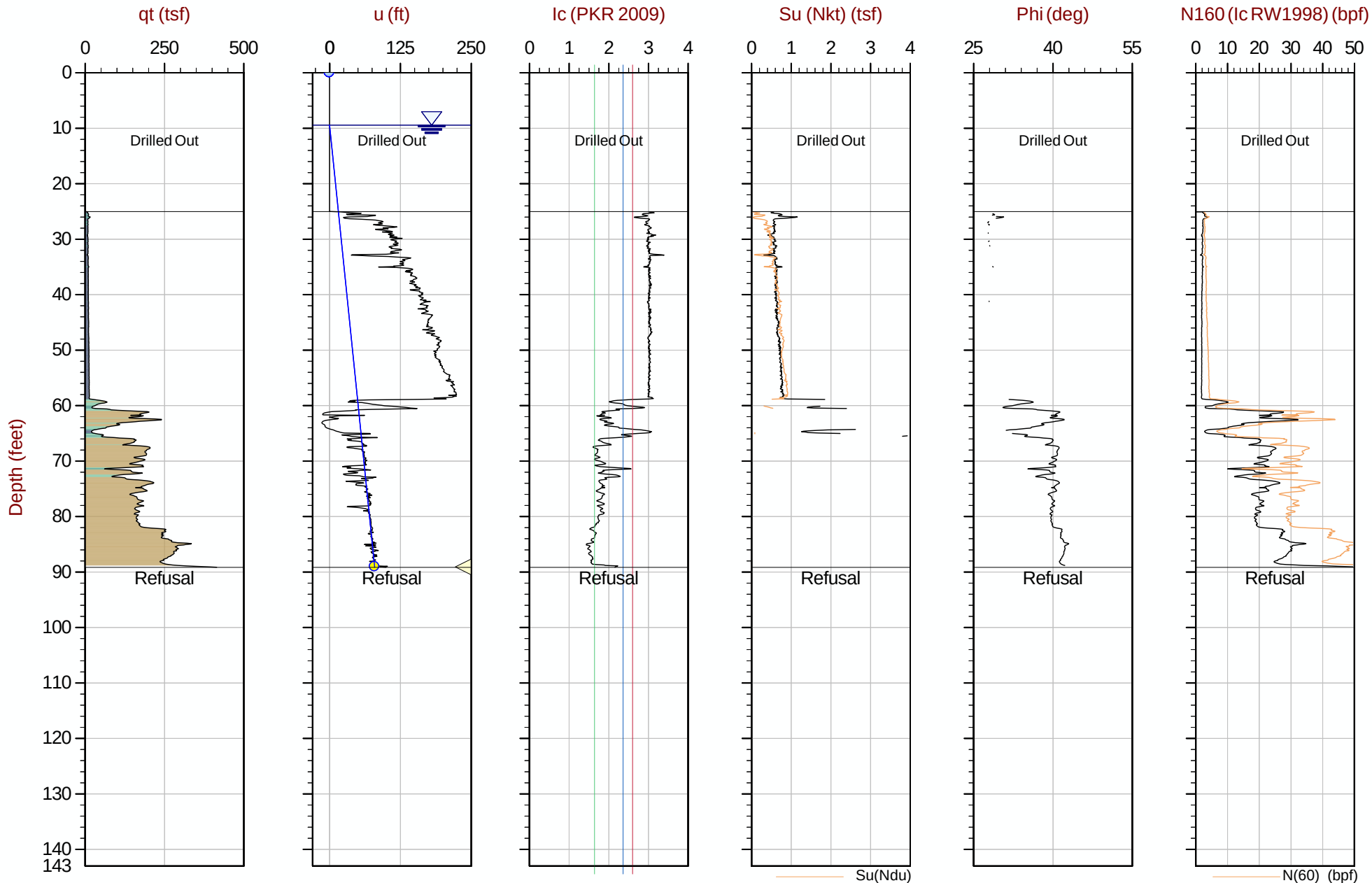
Job No: 18-53107

Date: 2018-09-20 11:42

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-10

Cone: 550:T1500F15U500



Max Depth: 27.175 m / 89.16 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP10.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833181m E: 398234m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

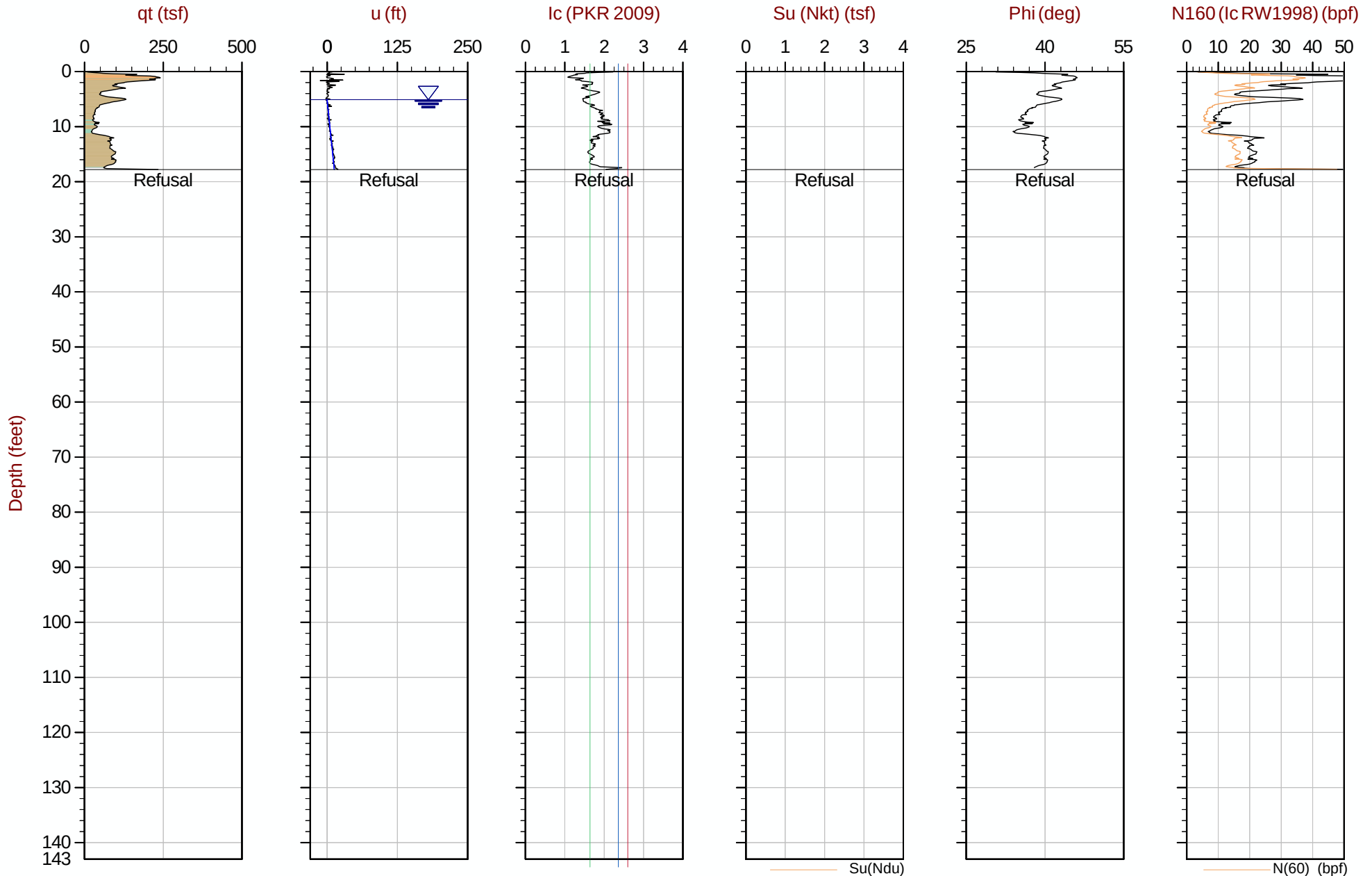
Job No: 18-53107

Date: 2018-09-18 09:37

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-11

Cone: 550:T1500F15U500



Max Depth: 5.425 m / 17.80 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP11.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833184m E: 398275m

Hydrostatic Line ● Ueq ● Assumed Ueq ◀ PPD, Ueq achieved ◀ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

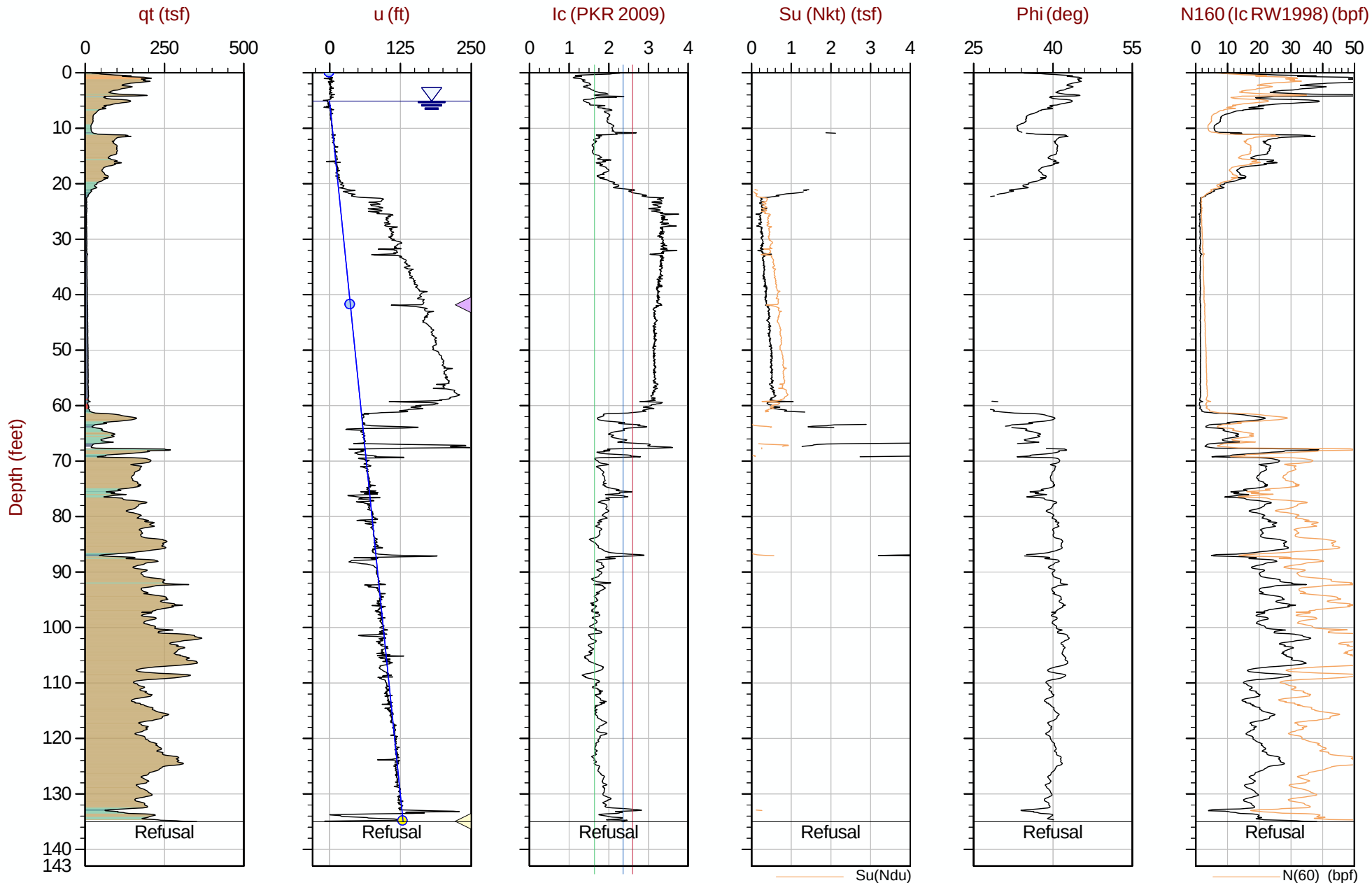
Job No: 18-53107

Date: 2018-09-18 10:12

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-11A

Cone: 550:T1500F15U500



Max Depth: 41.150 m / 135.00 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP11A.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833176m E: 398269m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

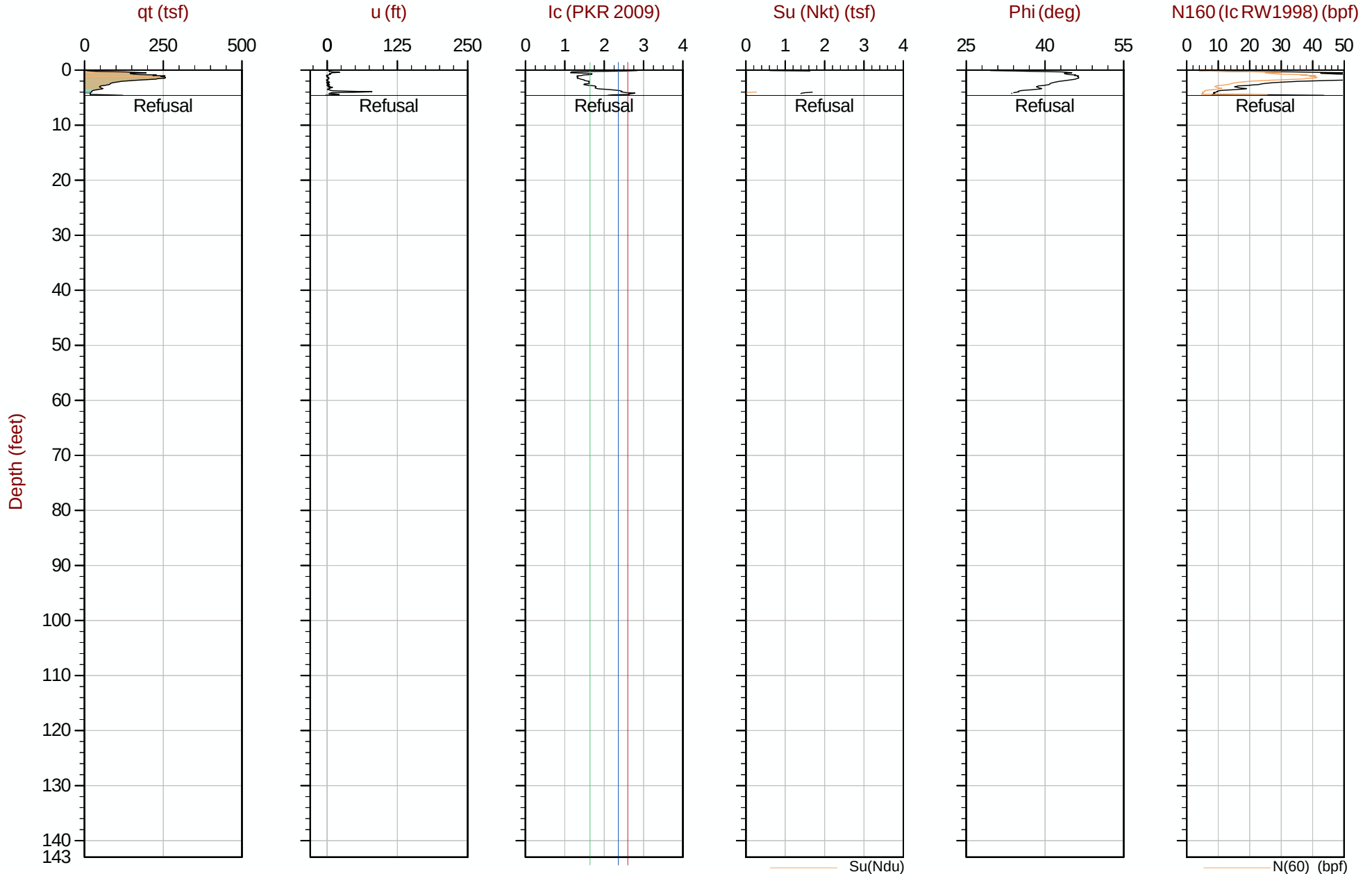
Job No: 18-53107

Date: 2018-09-18 08:04

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-12

Cone: 550:T1500F15U500



Max Depth: 1.400 m / 4.59 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP12.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833126m E: 398203m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

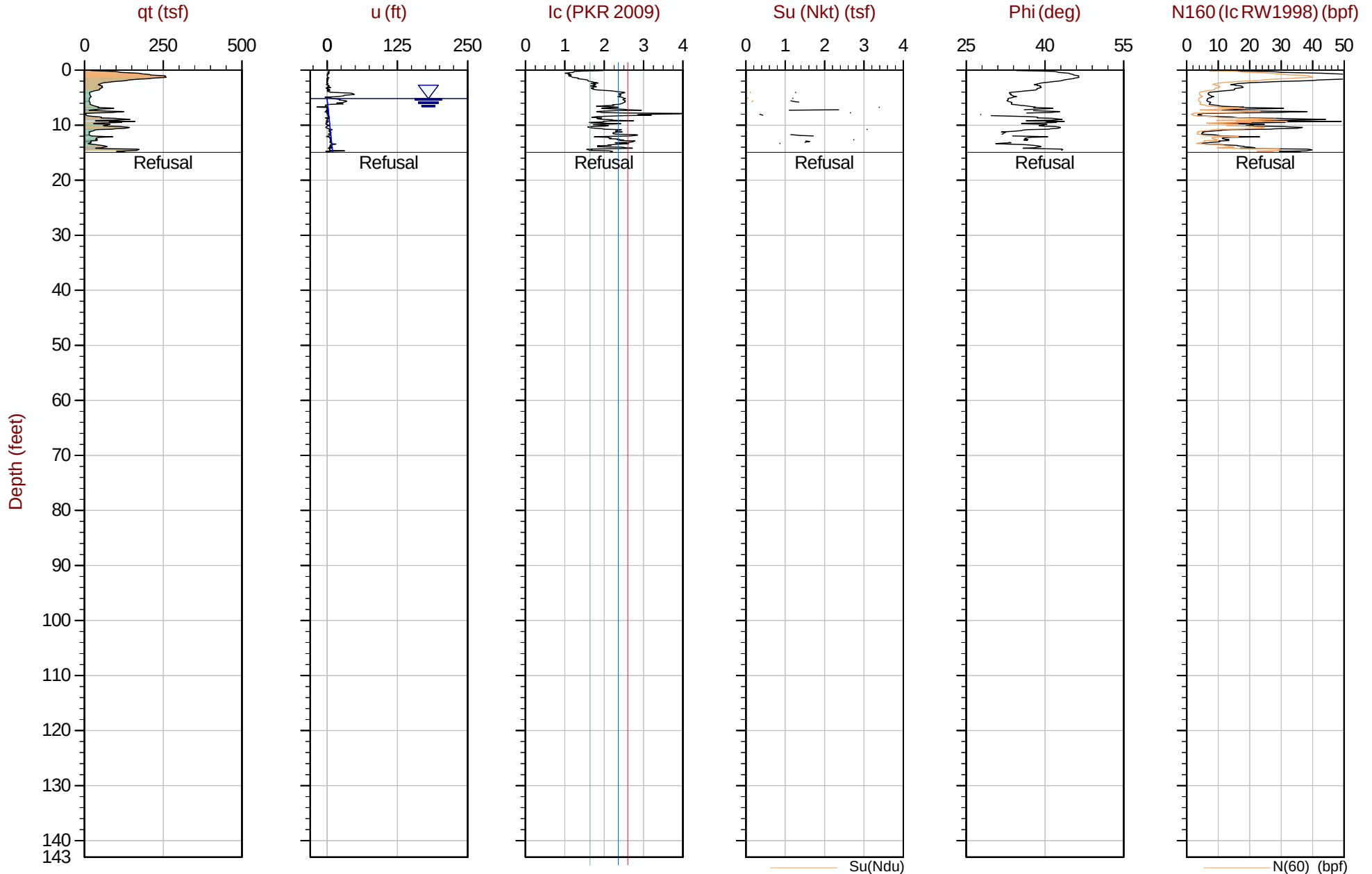
Job No: 18-53107

Date: 2018-09-18 08:23

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-12A

Cone: 550:T1500F15U500



Max Depth: 4.550 m / 14.93 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP12A.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833123m E: 398208m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

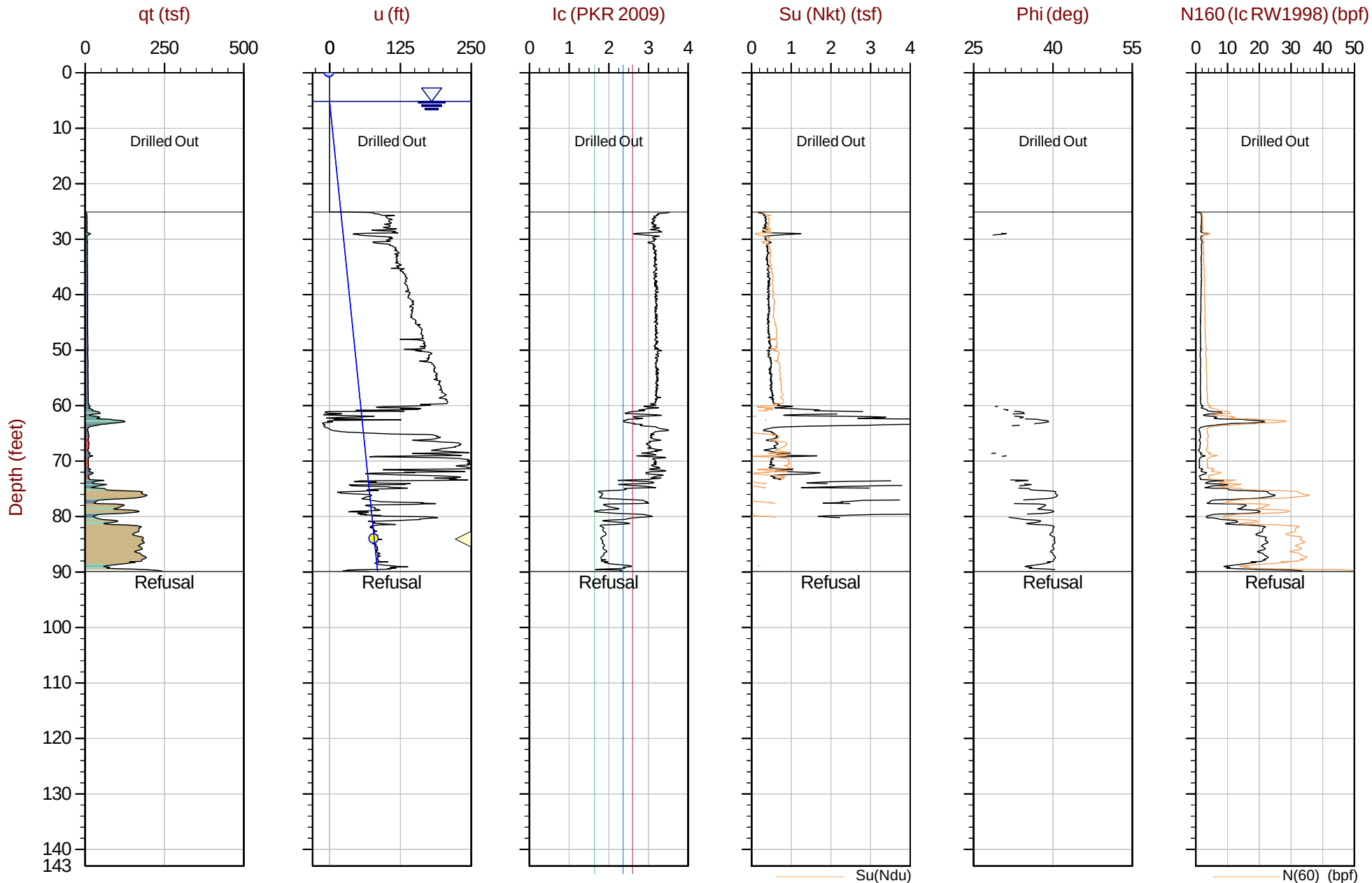
Job No: 18-53107

Date: 2018-09-20 08:30

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-12C

Cone: 550:T1500F15U500



Max Depth: 27.400 m / 89.89 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP12C.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833125m E: 398209m

Hydrostatic Line ● Ueq ● Assumed Ueq ▲ PPD, Ueq achieved ▲ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

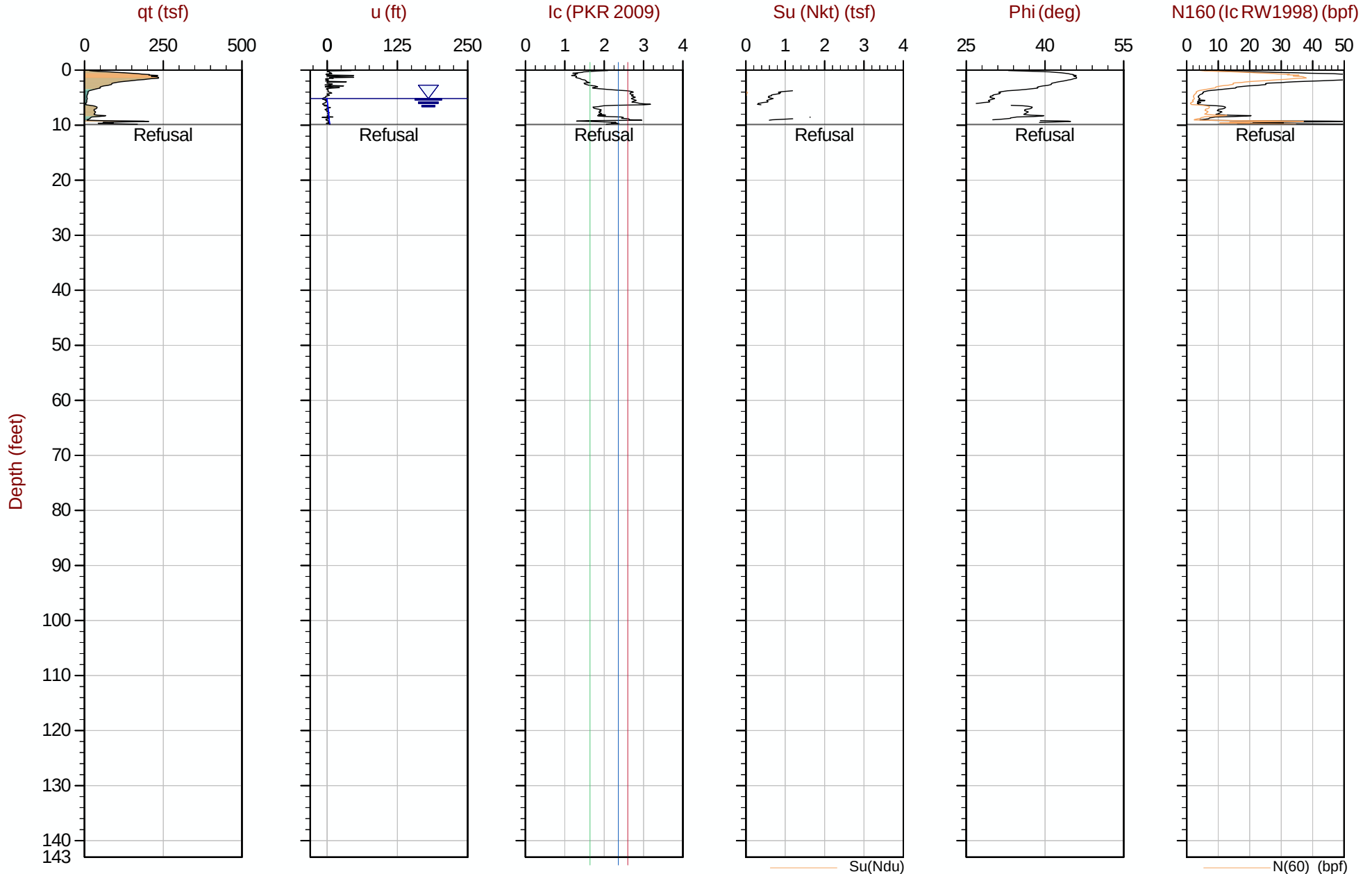
Job No: 18-53107

Date: 2018-09-20 10:56

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-12D

Cone: 550:T1500F15U500



Max Depth: 3.000 m / 9.84 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP12D.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833121m E: 398204m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

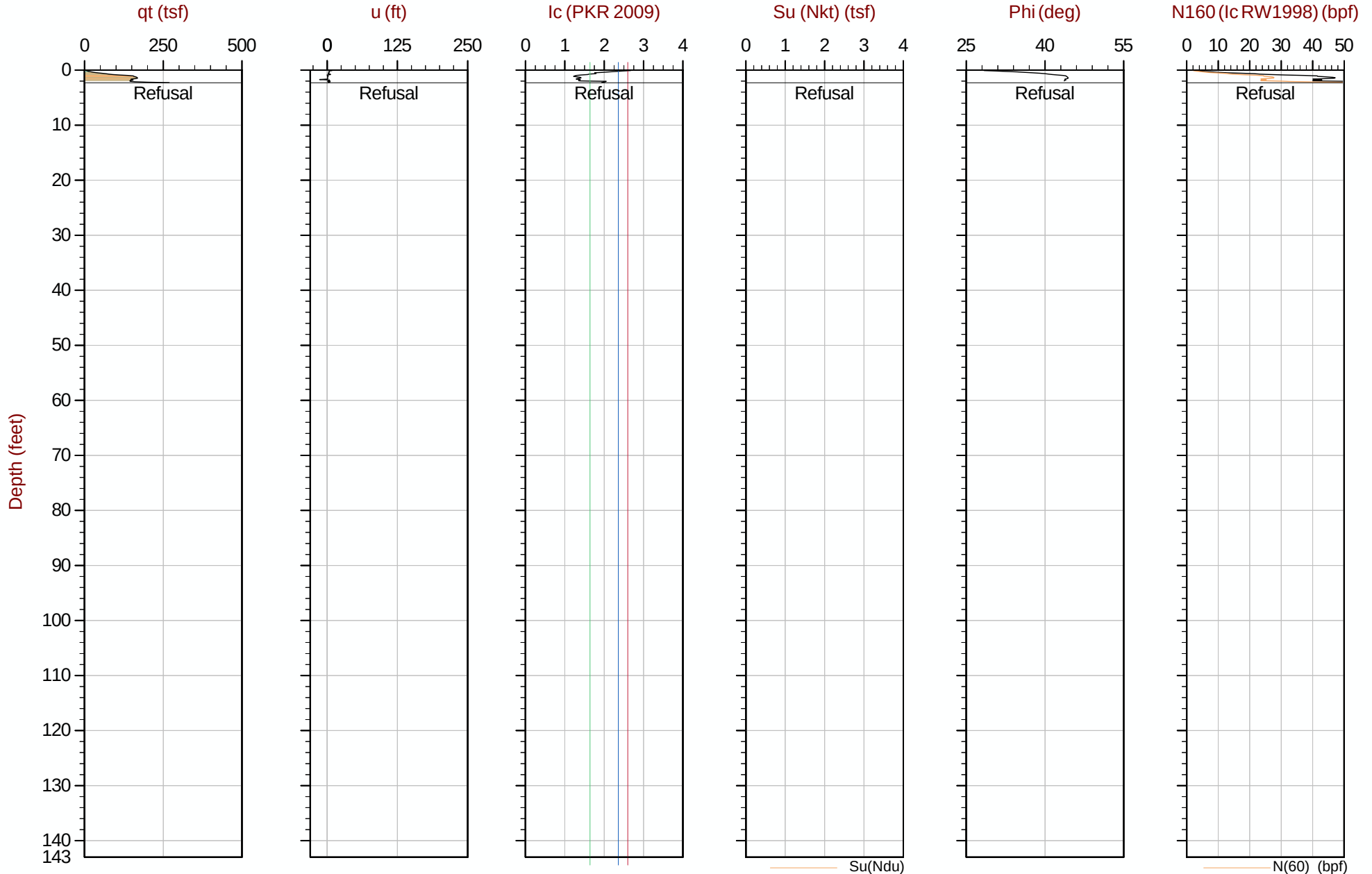
Job No: 18-53107

Date: 2018-09-18 08:57

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-14

Cone: 550:T1500F15U500



Max Depth: 0.700 m / 2.30 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP14.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833140m E: 398292m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

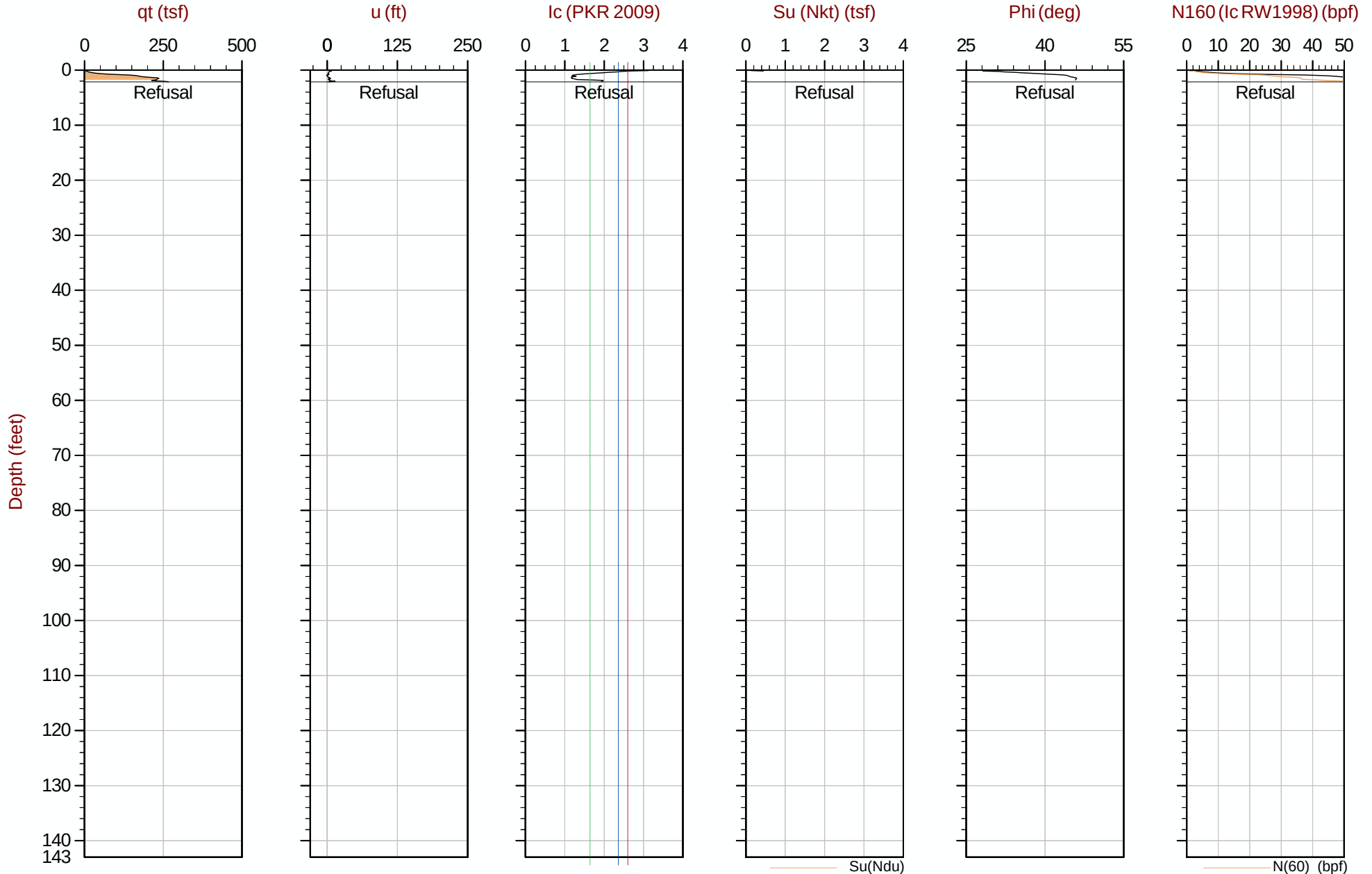
Job No: 18-53107

Date: 2018-09-18 09:11

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-14A

Cone: 550:T1500F15U500



Max Depth: 0.650 m / 2.13 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 18-53107_CP14A.COR
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4833137m E: 398285m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.



SW Cole Engineering

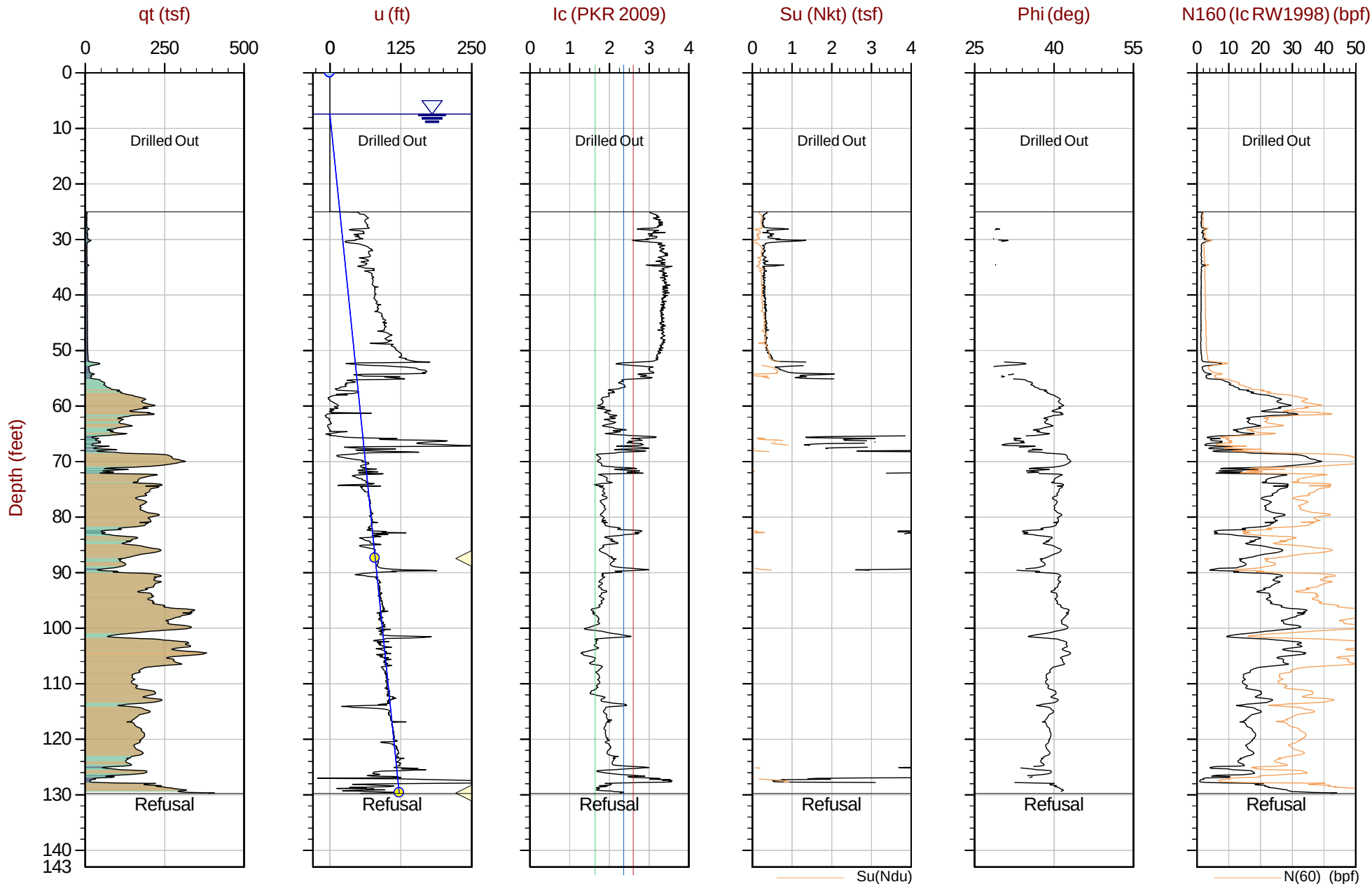
Job No: 18-53107

Date: 2018-09-20 04:17

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-14B

Cone: 550:T1500F15U500



The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Pore Pressure Dissipation Summary and
Pore Pressure Dissipation Plots



Job No: 18-53107
Client: S.W. Cole Engineering
Project: Cold Storage Warehouse, Portland, ME
Start Date: 18-Sep-2018
End Date: 21-Sep-2018

CPT_u PORE PRESSURE DISSIPATION SUMMARY

Sounding ID	File Name	Cone Area (cm ²)	Duration (s)	Test Depth (ft)	Estimated Equilibrium Pore Pressure U _{eq} (ft)	Calculated Phreatic Surface (ft)	Estimated Phreatic Surface (ft)
CPT18-02	18-53107_CP02.PPD	15	420	57.50	47.56	9.93	
CPT18-02	18-53107_CP02.PPD	15	125	74.88	64.87	10.01	
CPT18-05	18-53107_CP05.PPD	15	240	78.66	70.40	8.26	
CPT18-06A	18-53107_CP06A.PPD	15	300	73.41	64.87	8.54	
CPT18-07	18-53107_CP07.PPD	15	1105	139.76	133.63	6.13	
CPT18-08	18-53107_CP08.PPD	15	560	97.28	89.82	7.46	
CPT18-10	18-53107_CP10.PPD	15	50	89.07	79.64	9.44	
CPT18-11A	18-53107_CP11A.PPD	15	650	41.83	36.72		5.11
CPT18-11A	18-53107_CP11A.PPD	15	360	134.92	129.82	5.11	
CPT18-12C	18-53107_CP12C.PPD	15	495	84.07	78.91	5.16	
CPT18-14B	18-53107_CP14B.PPD	15	180	87.43	80.00	7.43	
CPT18-14B	18-53107_CP14B.PPD	15	210	129.67	122.73	6.95	
Totals	12 dissipations		78.3 min				



SW Cole Engineering

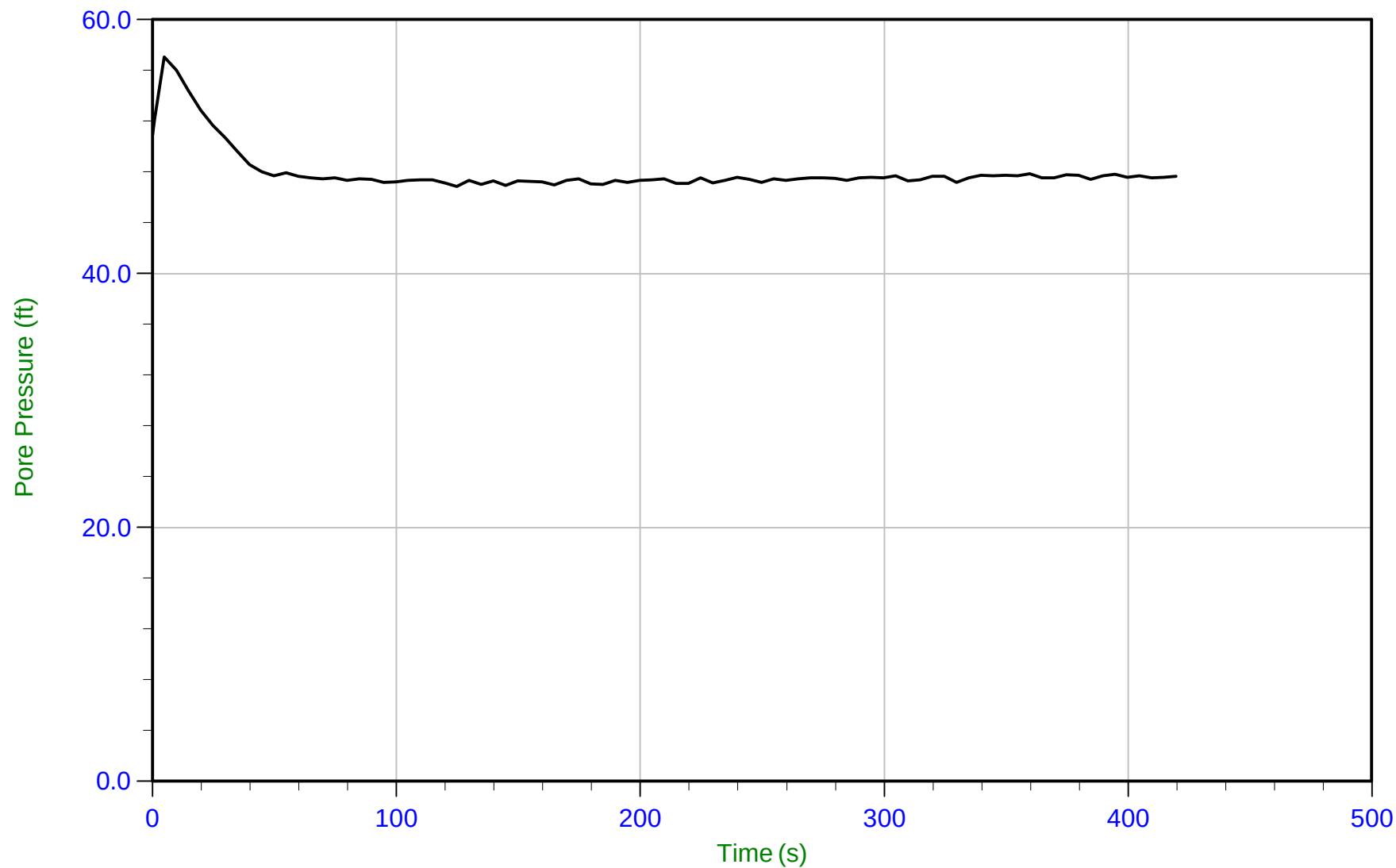
Job No: 18-53107

Date: 09/19/2018 23:26

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-02

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary: Filename: 18-53107_CP02.PPD
Depth: 17.525 m / 57.496 ft
Duration: 420.0 s

U Min: 46.9 ft
U Max: 57.1 ft

WT: 3.028 m / 9.933 ft
Ueq: 47.6 ft



SW Cole Engineering

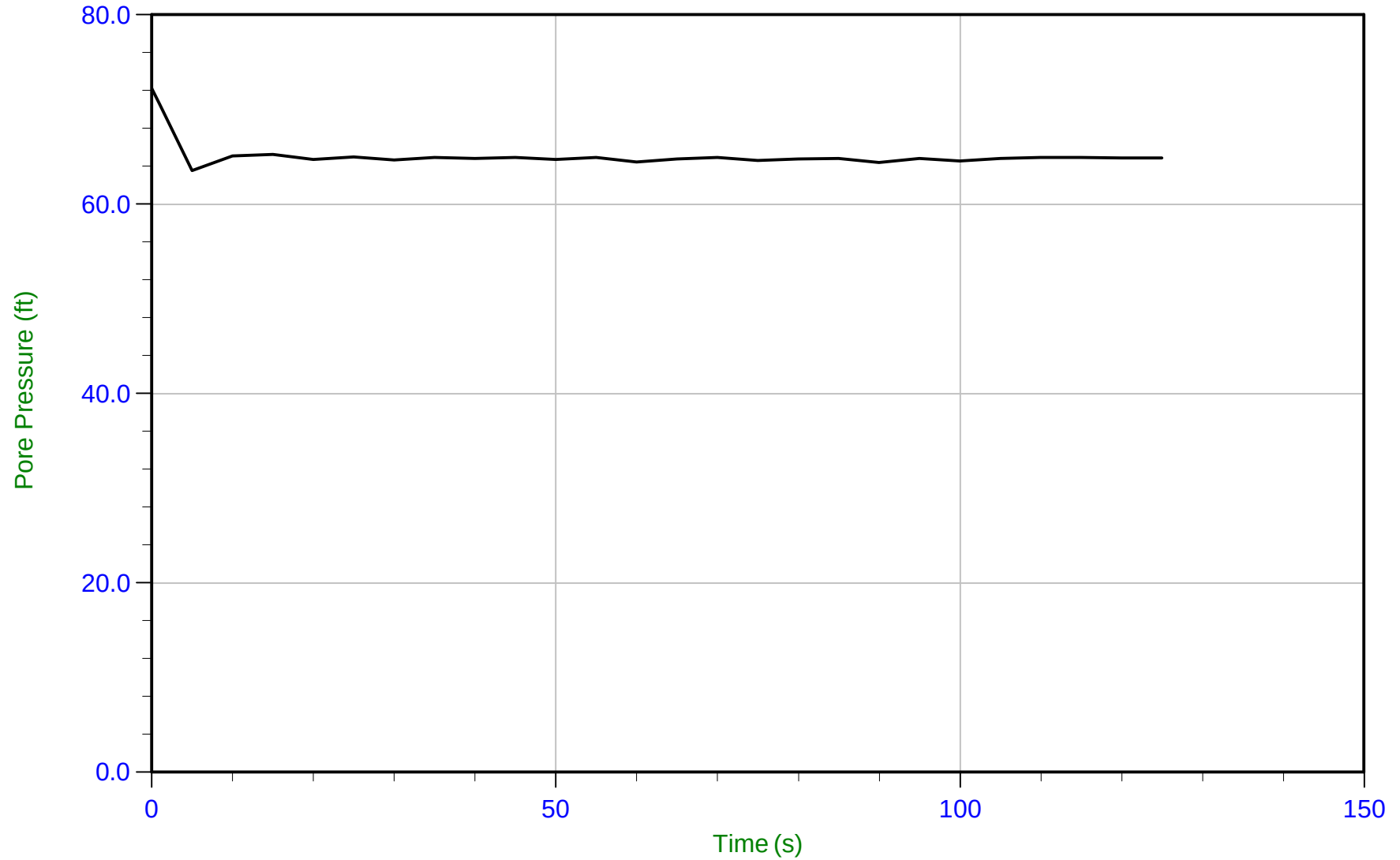
Job No: 18-53107

Date: 09/19/2018 23:26

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-02

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary: Filename: 18-53107_CP02.PPD U Min: 63.6 ft WT: 3.052 m / 10.012 ft
Depth: 22.825 m / 74.884 ft U Max: 72.3 ft Ueq: 64.9 ft
Duration: 125.0 s



SW Cole Engineering

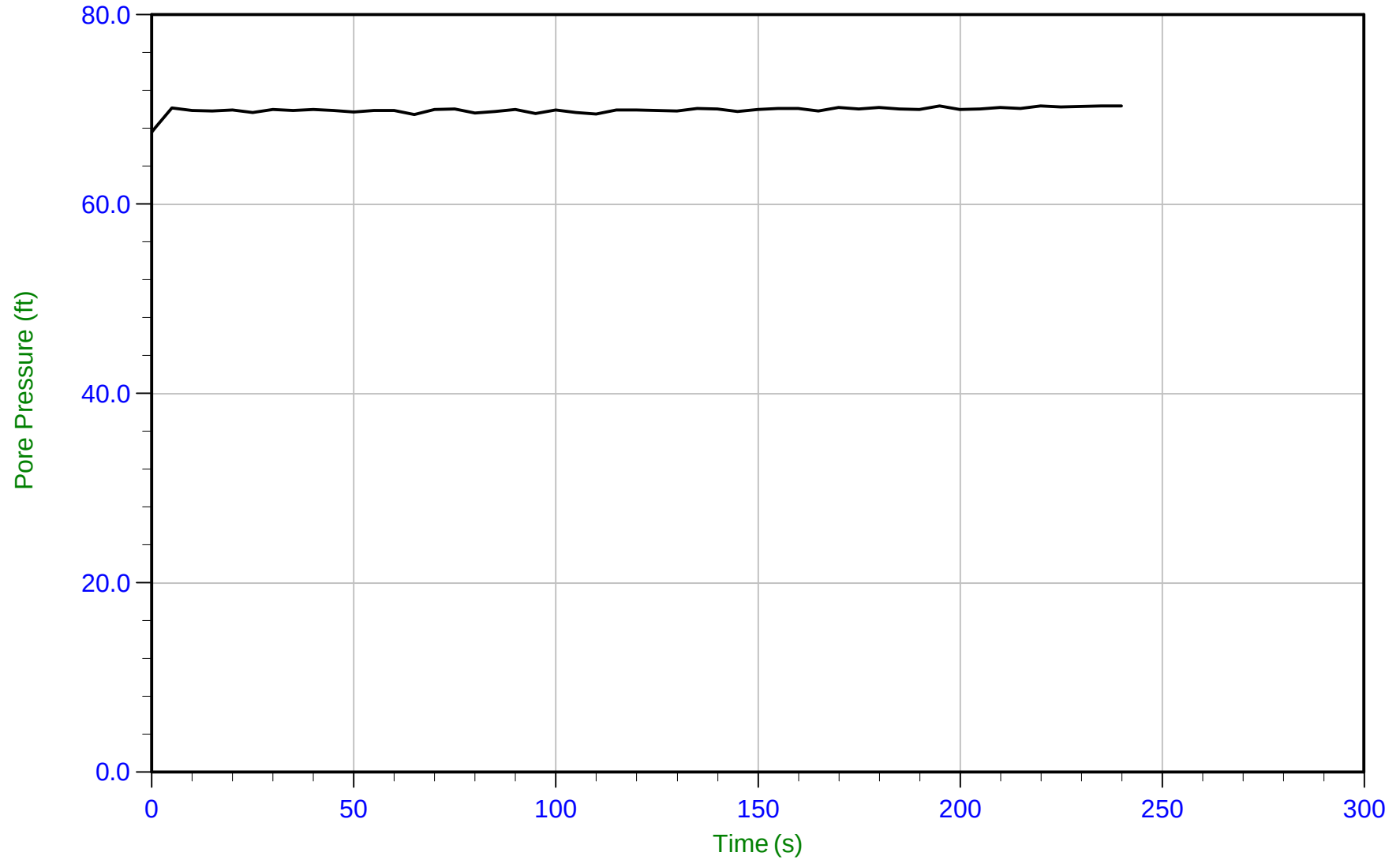
Job No: 18-53107

Date: 09/21/2018 13:14

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-05

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary: Filename: 18-53107_CP05.PPD
Depth: 23.975 m / 78.657 ft
Duration: 240.0 s

U Min: 67.6 ft
U Max: 70.4 ft

WT: 2.517 m / 8.258 ft
Ueq: 70.4 ft



SW Cole Engineering

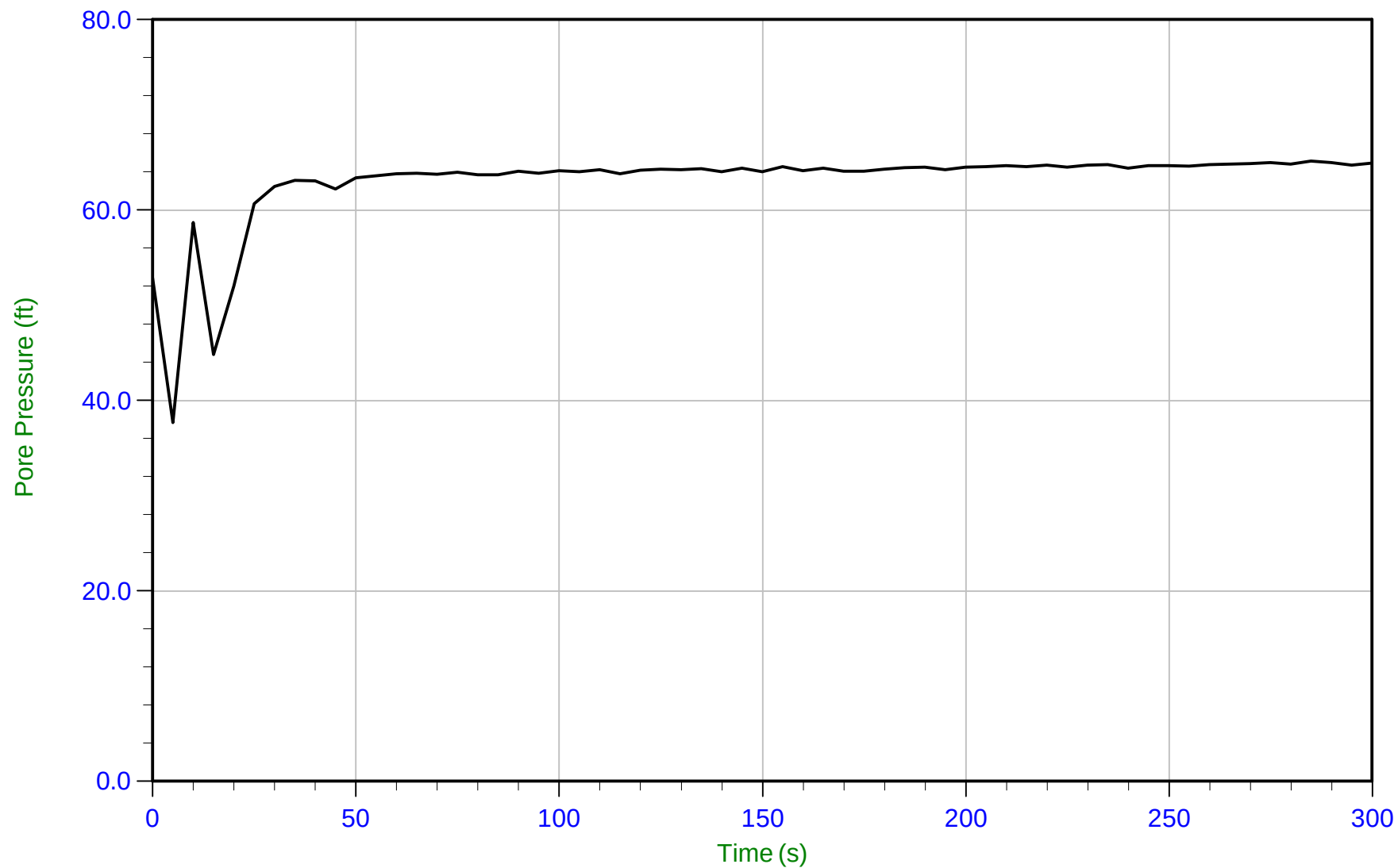
Job No: 18-53107

Date: 09/21/2018 08:17

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-06A

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary: Filename: 18-53107_CP06A.PPD
Depth: 22.375 m / 73.408 ft
Duration: 300.0 s

U Min: 37.7 ft
U Max: 65.1 ft

WT: 2.602 m / 8.536 ft
Ueq: 64.9 ft



SW Cole Engineering

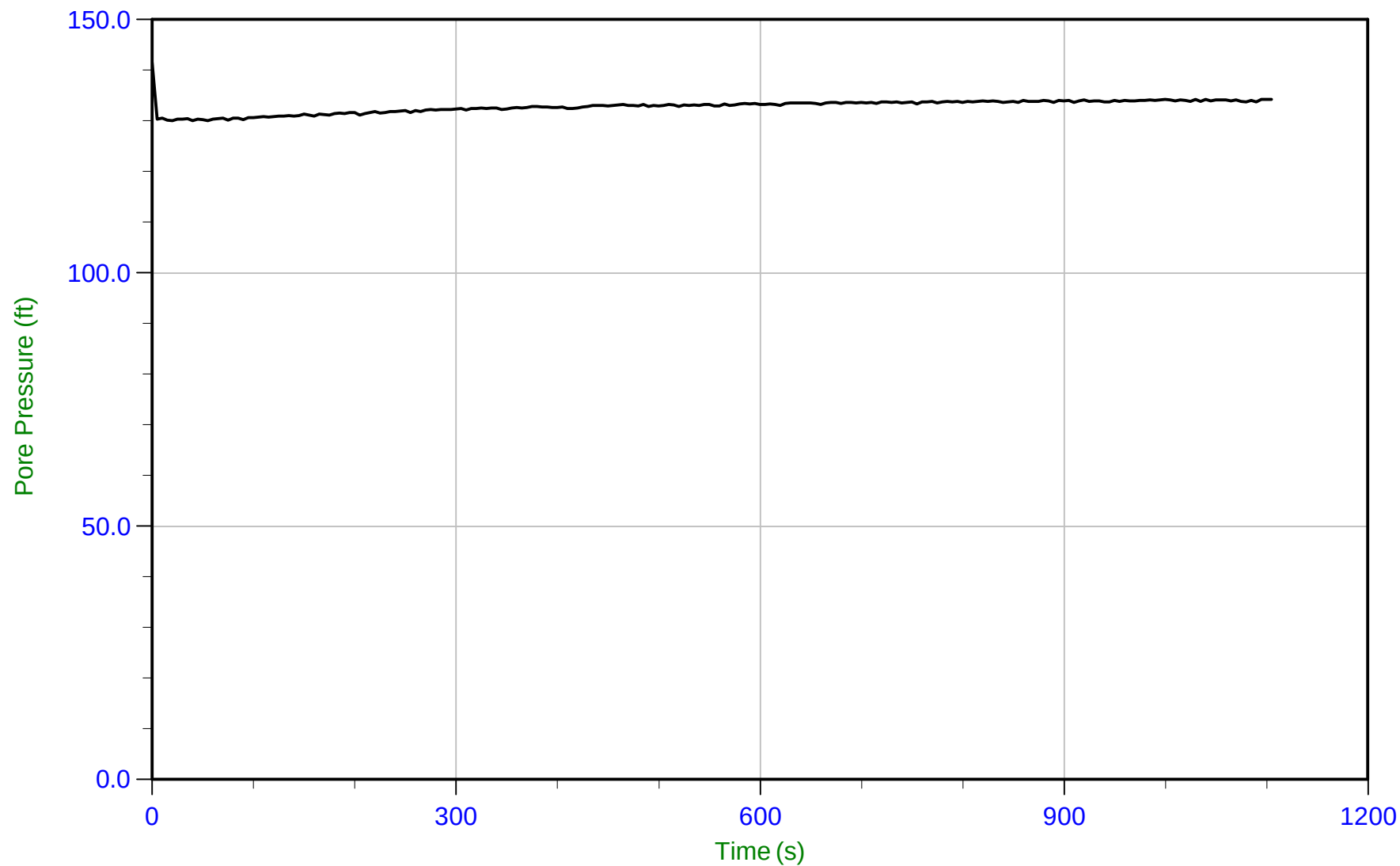
Job No: 18-53107

Date: 09/20/2018 14:41

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-07

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary: Filename: 18-53107_CP07.PPD
Depth: 42.600 m / 139.762 ft
Duration: 1105.0 s

U Min: 130.0 ft
U Max: 141.5 ft

WT: 1.868 m / 6.127 ft
Ueq: 133.6 ft



SW Cole Engineering

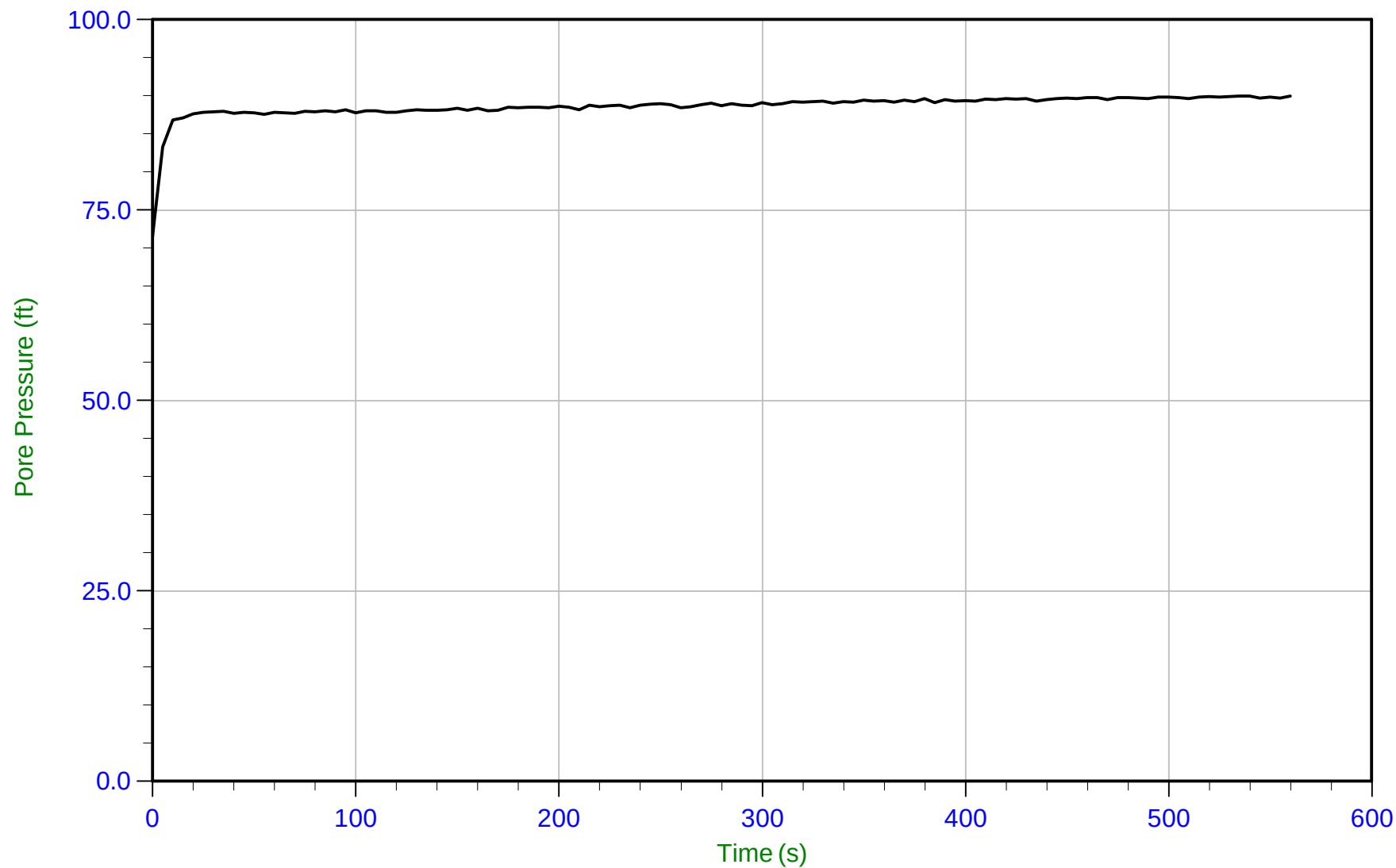
Job No: 18-53107

Date: 09/21/2018 14:51

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-08

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary: Filename: 18-53107_CP08.PPD
Depth: 29.650 m / 97.276 ft
Duration: 560.0 s

U Min: 71.5 ft
U Max: 90.0 ft

WT: 2.273 m / 7.459 ft
Ueq: 89.8 ft



SW Cole Engineering

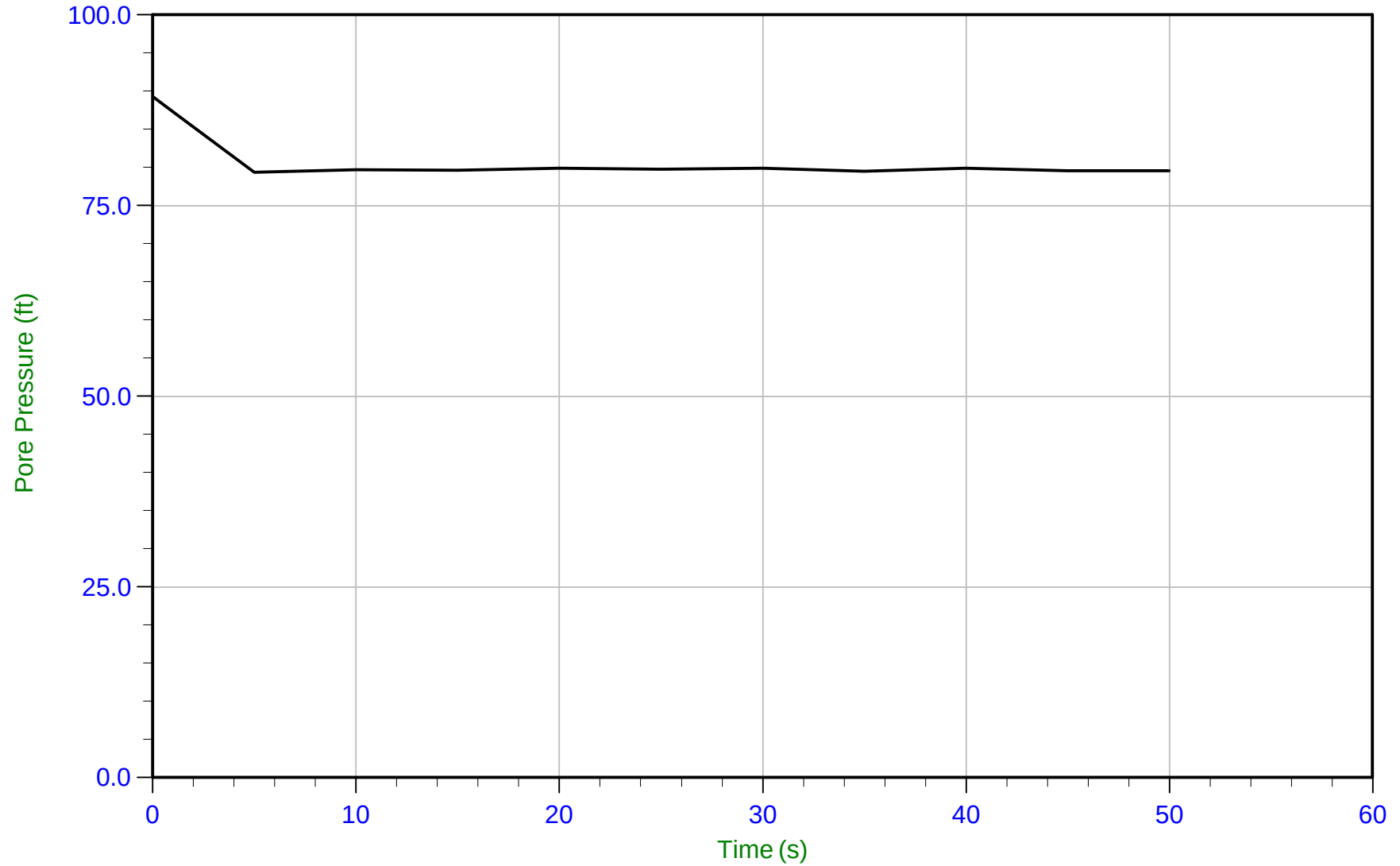
Job No: 18-53107

Date: 09/20/2018 11:42

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-10

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary: Filename: 18-53107_CP10.PPD
Depth: 27.150 m / 89.074 ft
Duration: 50.0 s

U Min: 79.4 ft
U Max: 89.3 ft

WT: 2.877 m / 9.438 ft
Ueq: 79.6 ft



SW Cole Engineering

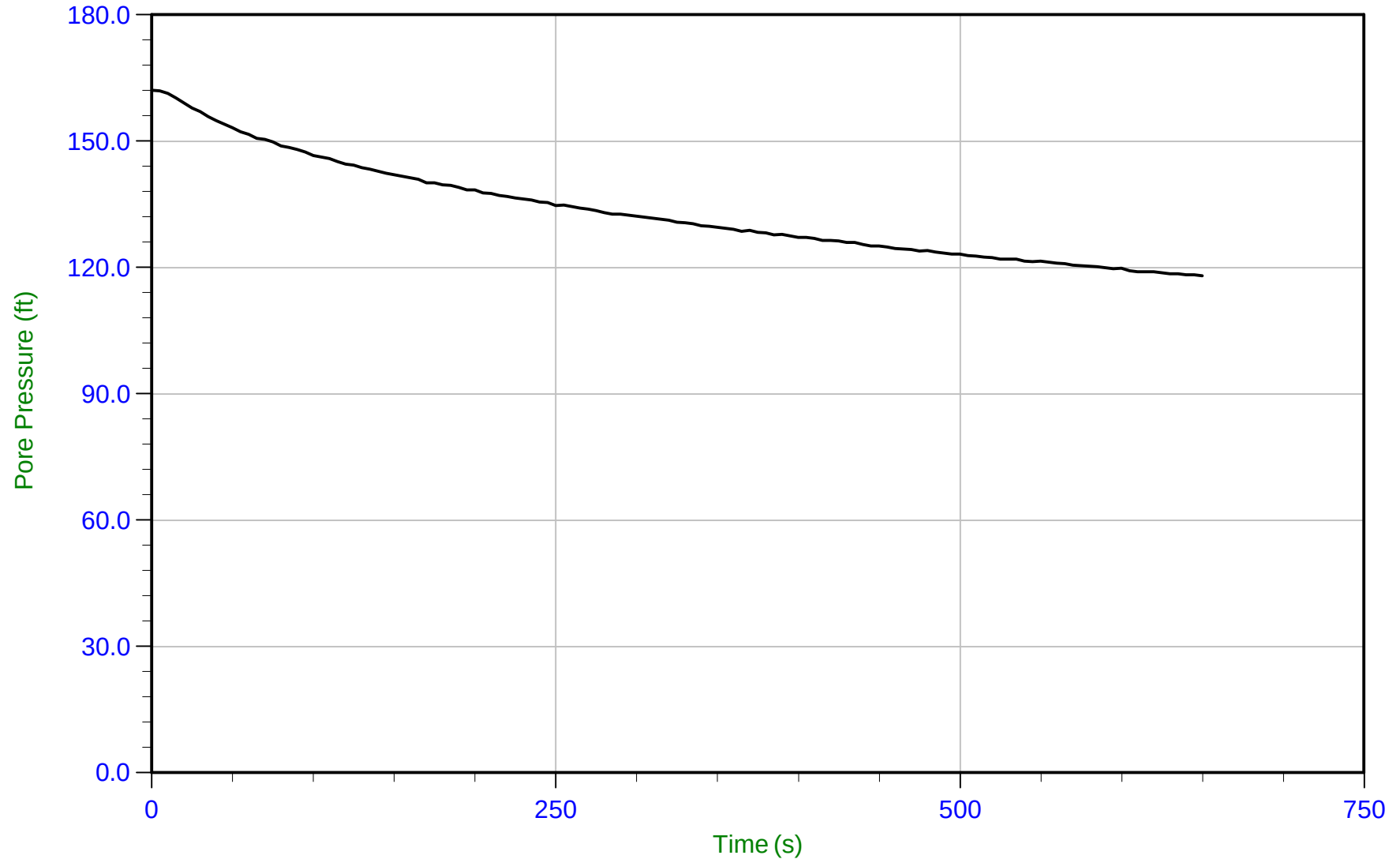
Job No: 18-53107

Date: 09/18/2018 10:12

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-11A

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary: Filename: 18-53107_CP11A.PPD U Min: 118.1 ft WT: 1.556 m / 5.106 ft
Depth: 12.750 m / 41.830 ft U Max: 162.1 ft Ueq: 36.7 ft
Duration: 650.0 s



SW Cole Engineering

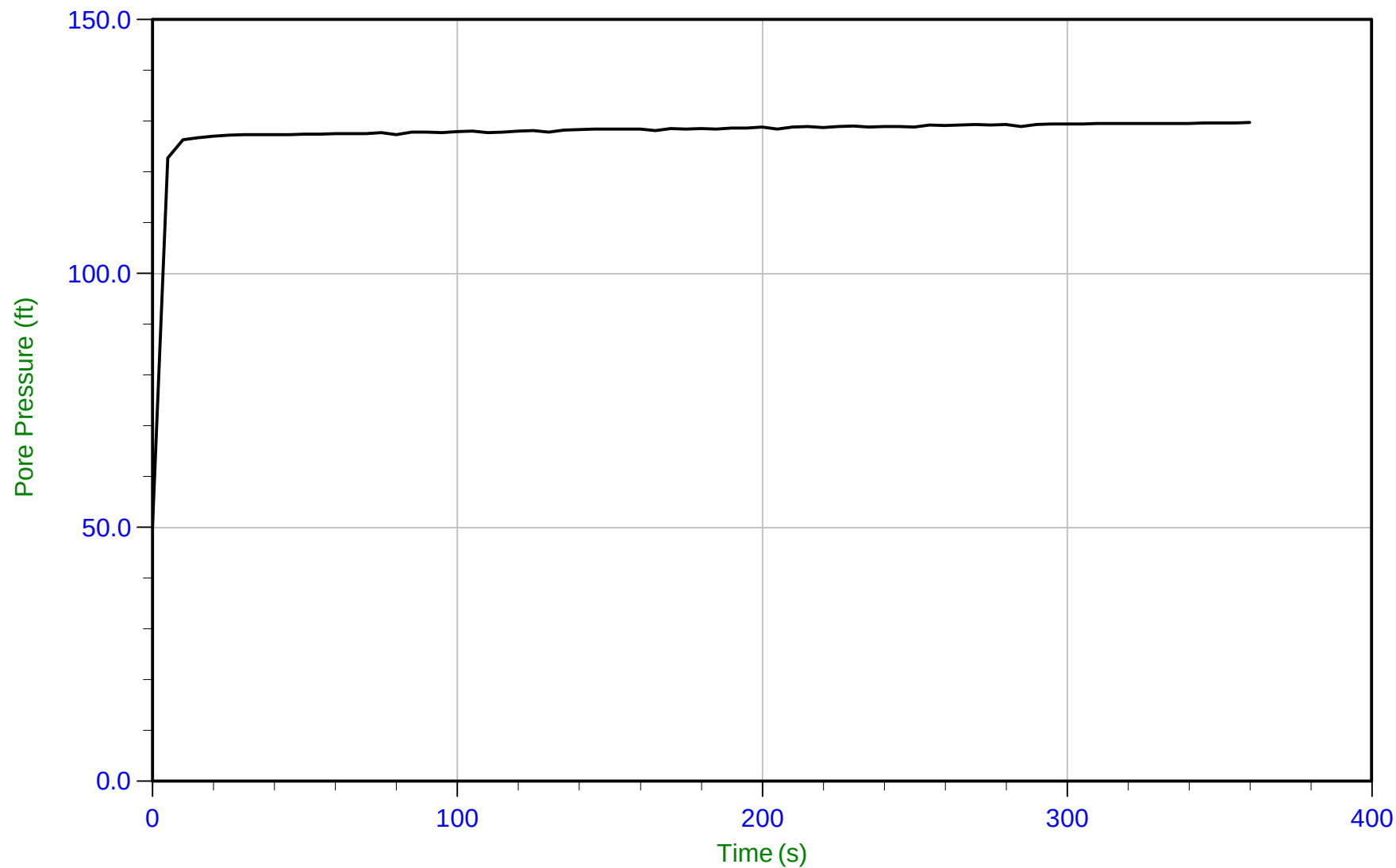
Job No: 18-53107

Date: 09/18/2018 10:12

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-11A

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary:

Filename: 18-53107_CP11A.PPD

Depth: 41.125 m / 134.923 ft

Duration: 360.0 s

U Min: 50.3 ft

U Max: 129.8 ft

WT: 1.556 m / 5.106 ft

Ueq: 129.8 ft



SW Cole Engineering

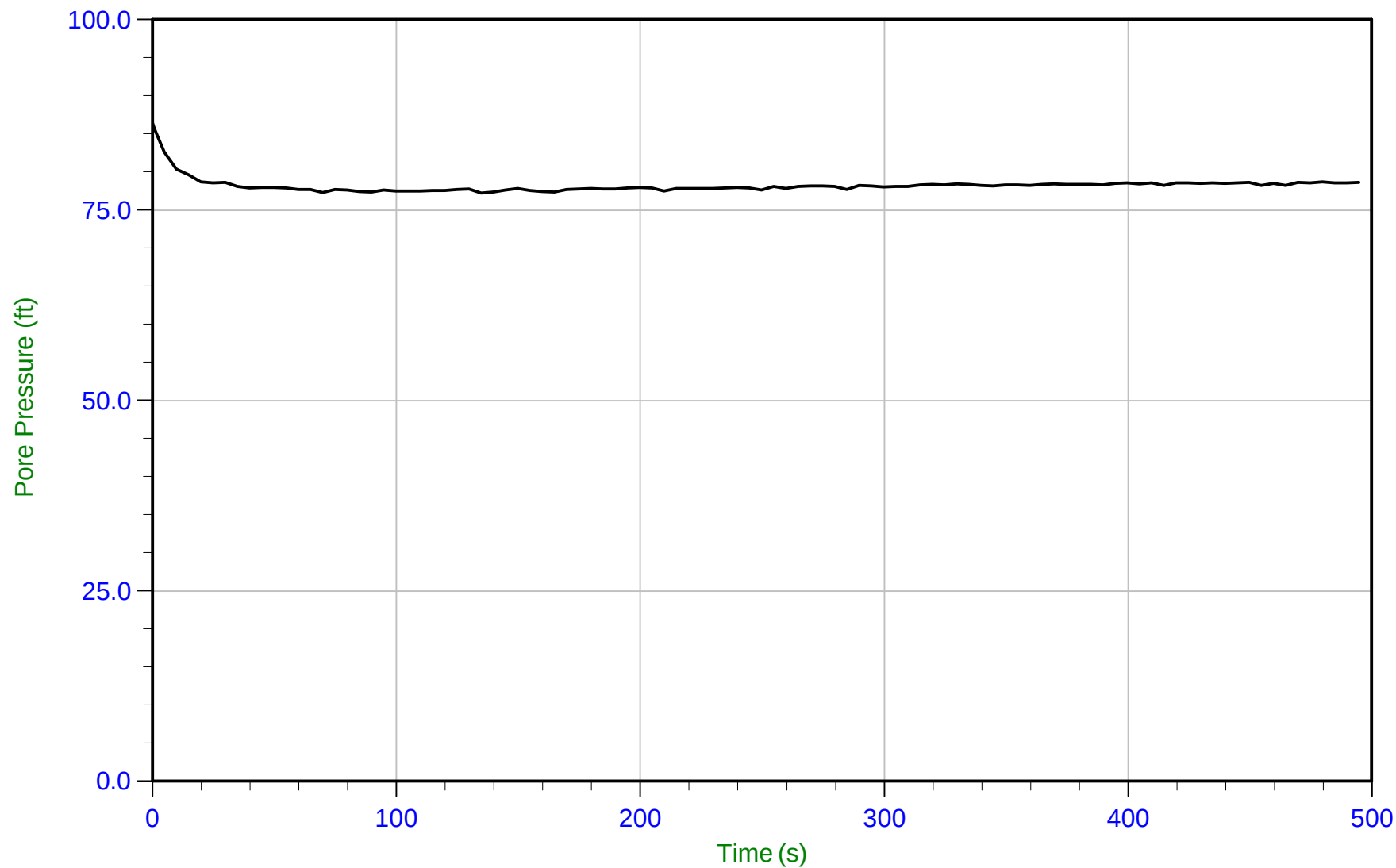
Job No: 18-53107

Date: 09/20/2018 08:30

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-12C

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary: Filename: 18-53107_CP12C.PPD
Depth: 25.625 m / 84.071 ft
Duration: 495.0 s

U Min: 77.3 ft
U Max: 86.4 ft

WT: 1.574 m / 5.162 ft
Ueq: 78.9 ft



SW Cole Engineering

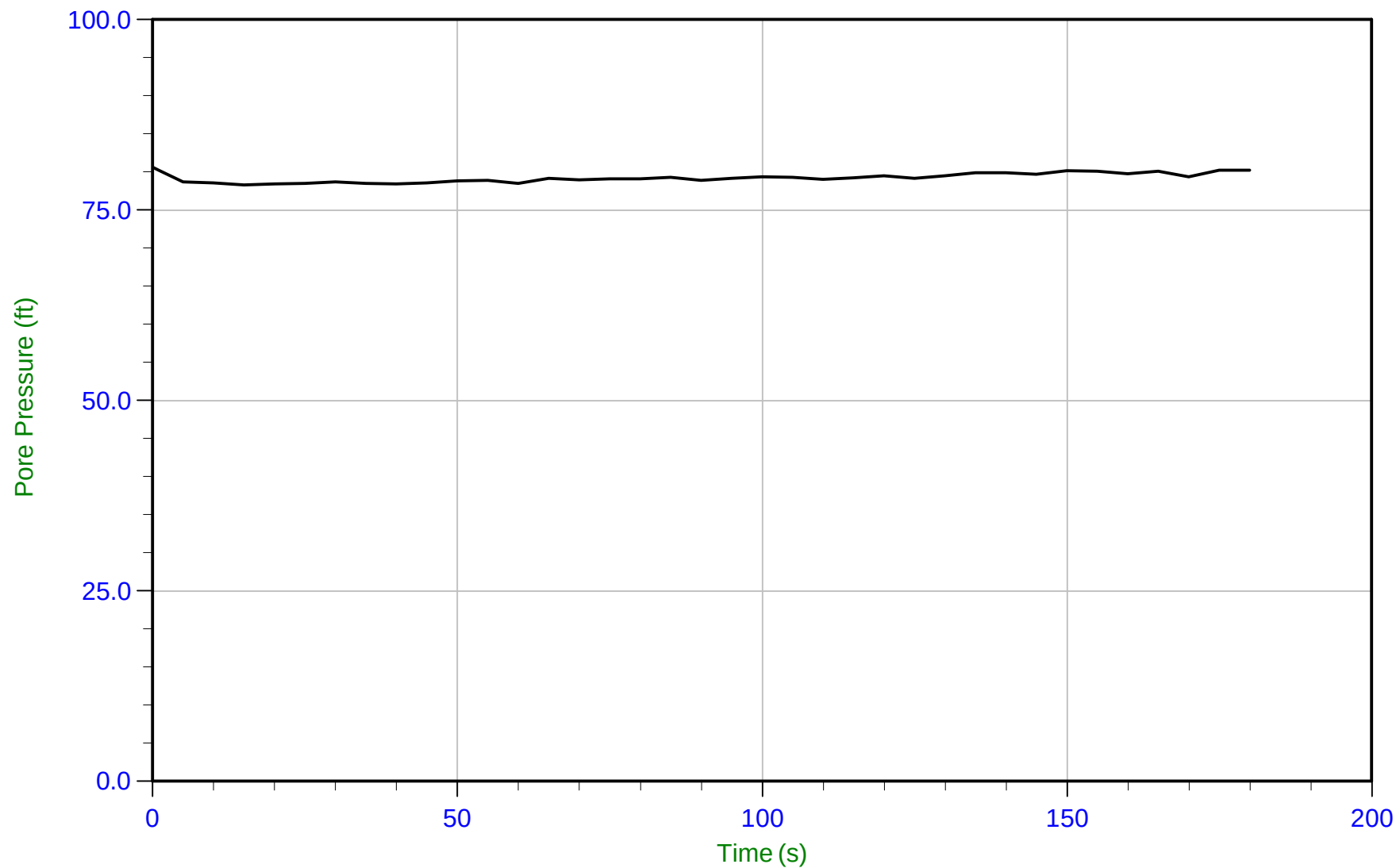
Job No: 18-53107

Date: 09/20/2018 04:17

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-14B

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary:

Filename: 18-53107_CP14B.PPD

Depth: 26.650 m / 87.433 ft

Duration: 180.0 s

U Min: 78.3 ft

U Max: 80.6 ft

WT: 2.266 m / 7.434 ft

Ueq: 80.0 ft



SW Cole Engineering

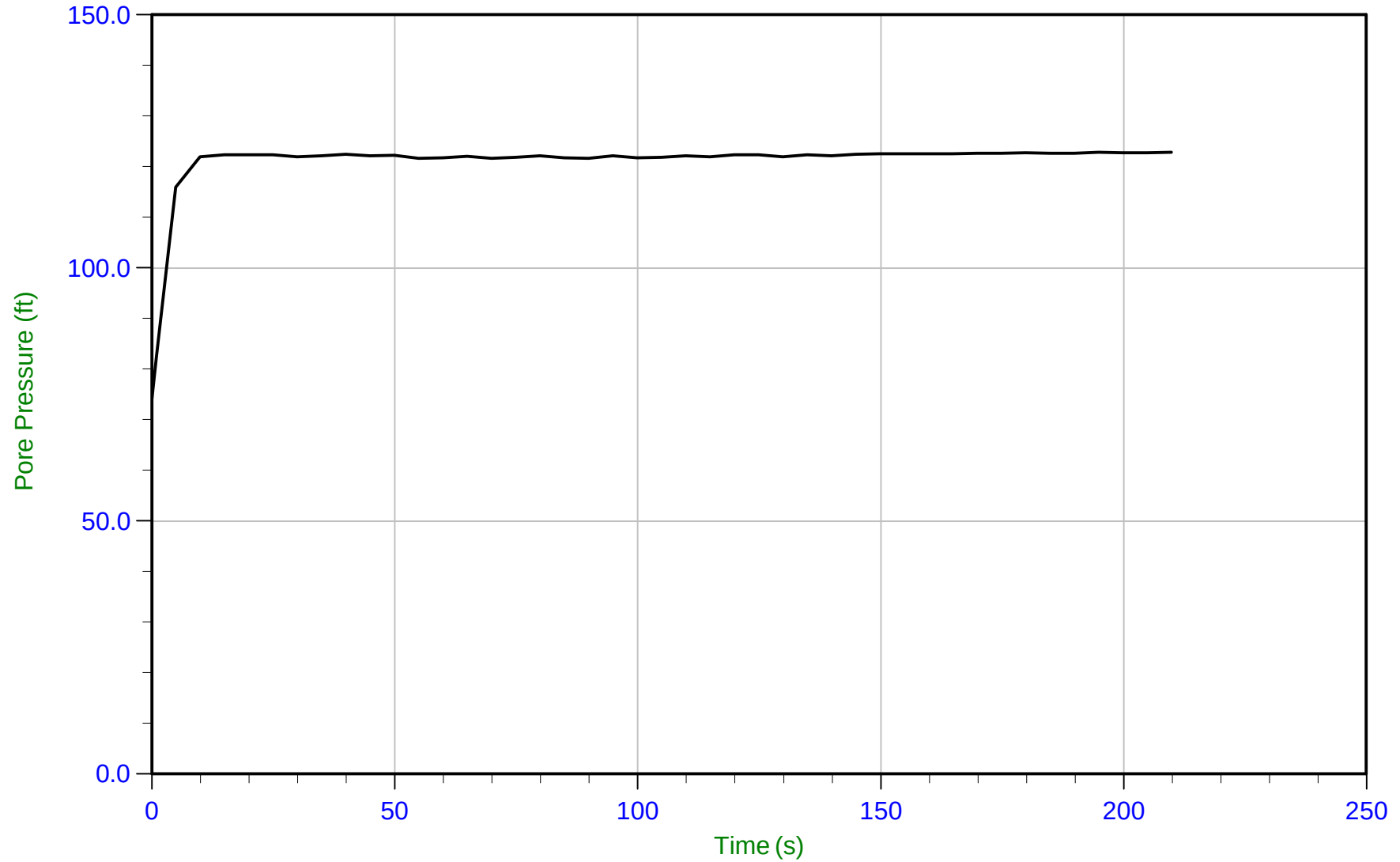
Job No: 18-53107

Date: 09/20/2018 04:17

Site: Cold Storage Warehouse, Portland, ME

Sounding: CPT18-14B

Cone: 550:T1500F15U500 Area=15 cm²



Trace Summary: Filename: 18-53107_CP14B.PPD
Depth: 39.525 m / 129.674 ft
Duration: 210.0 s

U Min: 74.2 ft
U Max: 122.9 ft

WT: 2.118 m / 6.948 ft
Ueq: 122.7 ft

APPENDIX E

Geophysical Testing Report

**SHEAR WAVE VELOCITY TESTING
FORMER PORTLAND GAS WORKS SITE
400 COMMERCIAL STREET
PORTLAND, MAINE**

Prepared for:

S. W. Cole Engineering, Inc.
286 Portland Road
Gray, Maine 04039

Prepared by:

Hager-Richter Geoscience, Inc.
8 Industrial Way, Suite D10
Salem, New Hampshire 03079

File 17J109
January, 2018

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2.	Equipment and Procedures	3
3.	Results and Discussion	5
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FIGURES

1. General Site Location
2. pVs Survey Line Locations

APPENDIX

1. Boring Locations and Logs Provided by S.W. Cole

1. INTRODUCTION

Hager-Richter Geoscience, Inc. (Hager-Richter) conducted passive surface shear wave velocity testing at the Former Portland Gasworks Site located at 400 Commercial Street in Portland, Maine in December, 2017 for S. W. Cole Engineering Inc., (S.W. Cole) of Gray, Maine. The geophysical testing was performed as part of a geotechnical investigation of the project site by S.W. Cole.

The site is the location of the former Portland Gasworks located at 400 Commercial Street in Portland. The property is located on the south side of Commercial Street at the intersection with York Street. Figure 1 shows the general location of the site. According to information provide by S.W. Cole, a low temperature warehouse is planned for the vacant Site. Stratigraphy at the Site reportedly consists of fill overlying soft clay and silt to depths of over 100 feet. Bedrock was not encountered in borings installed at the Site. S.W.Cole requested site specific shear wave velocity information as a function of depth for the soil and bedrock to a depth of 100 feet for the determination of seismic site class at the site.

The surface shear wave velocity testing was conducted using the passive shear wave seismic (pVs) method. Figure 2 is a Google Earth image of the site showing the location of the three seismic testing lines specified by S.W. Cole.

Jeffrey Reid, P.G., and Sean Reid of Hager-Richter conducted the seismic testing on December 19, 2017. The project was coordinated with Mr. Tim Boyce, P.E., of S.W. Cole. Mr. Patrick Otto, also of S.W. Cole, was present on site for the fieldwork and specified the pVs line location. Data analysis and interpretation were completed at the Hager-Richter offices. Original data and field notes will be retained in the Hager-Richter files for a minimum of three years.

2. EQUIPMENT AND PROCEDURES

2.1 *Method*

The passive shear wave seismic (pVs) method is a geophysical method to determine a shear-wave velocity profile at a single location by analyzing a particular type of seismic wave recorded on a multichannel record. The name pVs is derived from p for passive and Vs for velocity of shear waves. The pVs method, also called the Refraction Microtremor method, or ReMi™, uses Rayleigh waves, a particular kind of wave first described by Lord Rayleigh in 1885. Such waves are dispersive (meaning that the velocity is a function of the wavelength), and the amplitude of such waves decreases with depth. The velocity depends primarily on the shear wave velocities and layering of the subsurface material.

Rayleigh waves are a significant part of the ambient subsurface noise at most, if not all, sites. There are many sources of such noise, including, but not limited to, wind, pedestrian and vehicular traffic, surface and subway trains, and construction activities. Although such noise can be troublesome for most seismic methods, it is the source of signals for the pVs method, and the higher the noise level, the better the results for this method.

Low frequency (4.5 Hz) geophones are installed five feet apart along a straight line and connected to a seismograph. The ambient noise is recorded for 30 seconds two or three times, and examined to be sure that noise of sufficiently low frequency is present. If the noise is sufficient, then 10 to 15 such records are acquired. If the noise spectra do not reach sufficiently low frequencies, then one walks or runs along the testing line during data acquisition to add low frequency noise to the ambient noise. The surface waves used in the pVs method, considered noise in seismic refraction and seismic reflection surveys, are enhanced during data acquisition and processing for the pVs method. The seismic data are analyzed using SeisOpt® ReMi™, a commercially licensed software package developed by Optim, Inc. located at the University of Nevada at Reno. Results are normally presented as 1-D plots or in tabular form showing shear wave velocity as a function of depth for the center point of the seismic line.

2.2 *Determination of Average Shear Wave Velocity for Building Code Purposes*

The pVs method determines (a) the shear wave velocity at the mid point along a survey line for several layers, averaged over the length of the survey line, and (b) the average shear wave velocity V_{avg} for site classification for seismic design in accordance with building codes. Similar calculations can be performed with the results of the shear wave velocity survey. The average value V_{avg} is determined using the equation 16-44 of the IBC as follows:

$$V_{avg} = \left(\sum_{i=1}^N d_i \right) / \sum_{i=1}^N d_i / V_i$$

where d_i is thickness of layer i
 V_i is shear wave velocity of layer i
 N denotes the total number of layers

The Seismic Site Class, *based solely on average shear wave velocity*, is defined by the IBC as follows:

Site Class	Soil Profile Name	Soil Shear Wave Velocity (ft/s)
A	Hard rock	$V_s > 5000$
B	Rock	$2500 < V_s \leq 5000$
C	Very dense soil and soft rock	$1200 < V_s \leq 2500$
D	Stiff soil profile	$600 \leq V_s \leq 1200$
E	Soft soil profile	$V_s < 600$

Although the IBC provides other methods to determine the Site Class, such as standard penetration resistance (blow counts) and soil undrained shear strength, this report provides shear wave velocity data only. There is no consideration of other factors that may affect a site class such as liquefaction. The final determination of seismic site class should be made by the project engineer.

2.3 *Equipment*

We used a 48-channel digital seismograph (Geometrics Geode) coupled to 48 geophones to acquire the pVs data for the subject testing. We used 4.5-Hz frequency vertical geophones for the subject shear wave velocity testing.

2.4 *Limitations of the Method*

As with all physical measurements, there is experimental error in the velocities that are determined using the passive shear wave velocity method. For the pVs method, the accuracy of V_{avg} is stated by Optim, Inc. to be 5-15%.

The depth of investigation is a function of the noise spectrum, and long wave lengths (low frequencies) are required to determine velocity at large depths. Noise levels can be improved by a person running along the seismic spread during data acquisition.

2.5 *Site Specific*

The locations of the pVs test lines at the subject site are shown in Figure 2. The position of the pVs testing lines were located using a Trimble Geo 7X CM GPS receiver coupled with a Zephyr-2 external antenna. The pVs data were acquired using 48 4.5Hz geophones and a geophone spacing of 6 feet for Line 1 and 5 feet for Lines 2 and 3. The pVs method yields a simple vertical shear wave velocity profile for the mid-point of the test line. The seismic source for the pVs testing was ambient noise from nearby traffic and activity as well as thumping along the lines with a sledge hammer. Photo 1 shows the general surface conditions encountered.

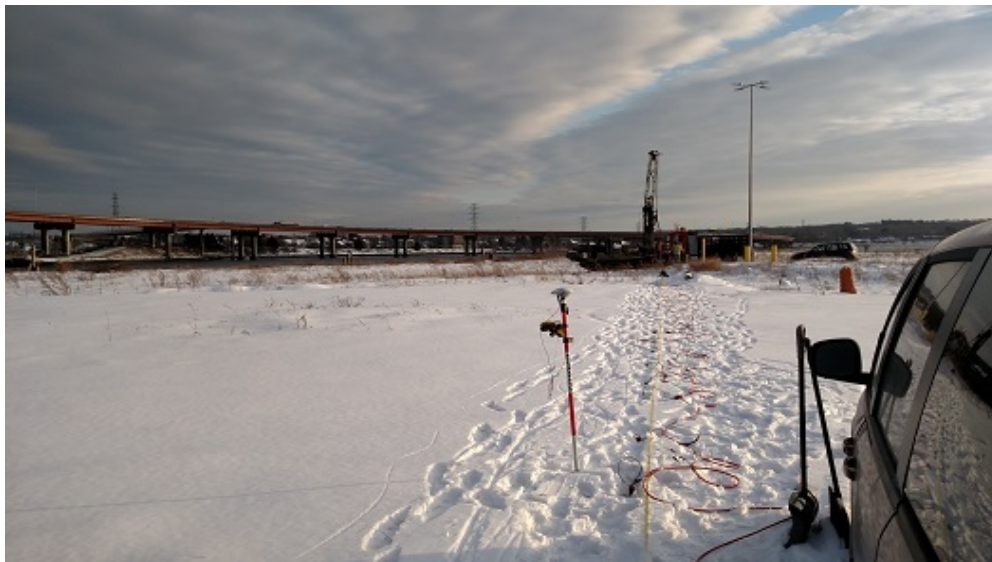


Photo 1. View looking south along pVs Test Line 3. Geophones were installed into the sand and gravel below the snow. Note the S.W. Cole drill rig in the background.

3. RESULTS AND DISCUSSION

The surface shear wave velocity testing was conducted using the passive shear wave seismic (pVs) method at three test locations specified by S.W. Cole and designated as Lines 1-3. The test locations and center points for the velocity profiles are shown in Figure 2.

According to information provided by S.W.Cole, stratigraphy consists of fill overlying soft clay and silt to depths of over 100 feet. Bedrock was not encountered in borings installed at the Site.

The quality for the pVs data at the subject site is judged to be very good. The results of the pVs testing are reported in Table 1. The pVs results are derived over test lines that span about 200-250 feet, providing an average velocity structure over the length of the test line. However, the borings provide very localized point information. Because of the localized nature of the boring data, no attempt was made to “force” a specific velocity model based on the boring data provided by SW Cole to remove any possible local bias from a point source. For modeling purposes, the subsurface stratigraphy was divided into four or five discrete units. The layer thicknesses that provide the best statistical fit to the dispersion curve are used for the models.

The root mean square error for the fit of the dispersion curves versus the measured data using the model velocities is 1.6% , 1.9%, and 2.9%, respectively, for pVs Lines 1-3. These very low error values indicate that the models fit the data extremely well. While the resulting velocity units do not necessarily correlate with specific lithologic units identified in any individual boring, there is very good general correlation between the generated velocity models the general site-wide stratigraphy.

The shear wave velocities for the individual stratigraphic modeled units are provided in Table 1. The average value of the velocity of shear waves for the depth interval of 0-100 ft based on Equation 1 of the IBC , $V_{s_{100}}$, are provided in Table 1 as 650 fps, 667 fps, and 611 fps, respectively, for Lines 1-3.

TABLE 1: pVs TEST RESULTS

Geologic Unit *	Line 1	
	Depth Interval (ft)	V _s ** (ft/s)
Loose Fill	0 - 10	422
More Dense Fill	10 - 16.5	1,582
Soft Clay and Silt	16.5 - 65	503
More Dense Sand and Silt (Till ?)	65 - 100	1,178
V _{s100} (ft/s)	650	
RMS	1.6%	
Geologic Unit *	Line 2	
	Depth Interval (ft)	V _s ** (ft/s)
Loose Fill	0 - 11	481
More Dense Fill	11 - 17	1,846
Soft Clay and Silt	17 - 69	537
More Dense Sand and Silt (Till ?)	69 - 100	1,156
V _{s100} (ft/s)	667	
RMS	1.9%	
Geologic Unit *	Line 3	
	Depth Interval (ft)	V _s ** (ft/s)
Loose Fill	0 - 5	456
Dense Fill	5 - 13	756
Soft Clay and Silt	13 - 52	503
Soft Clay and Silt (cont.)	52 - 80	532
More Dense Sand and Silt (Till ?)	80 - 100	1,657
V _{s100} (ft/s)	611	
RMS	2.9%	

* Part of the description of stratigraphy is based on boring logs provided by S.W. Cole

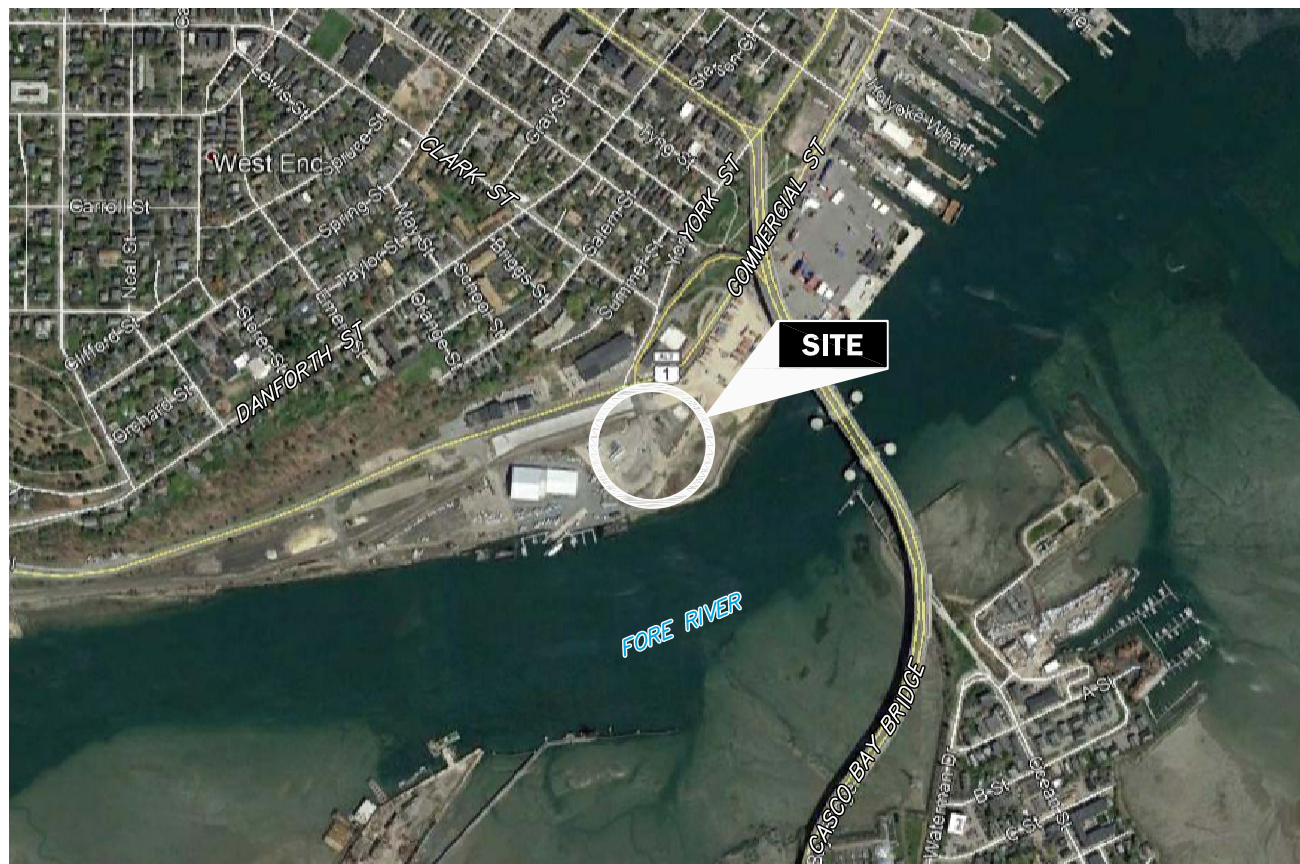
** Shear wave velocity profile is determined for the mid-point of the testing line

4. LIMITATIONS

This report was prepared for the exclusive use of S. W. Cole Engineering, Inc. (Client). No other party shall be entitled to rely on this Report or any information, documents, records, data, interpretations, advice or opinions given to Client by Hager-Richter Geoscience, Inc. (H-R) in the performance of its work. The Report relates solely to the specific project for which H-R has been retained and shall not be used or relied upon by Client or any third party for any variation or extension of this project, any other project or any other purpose without the express written permission of H-R. Any unpermitted use by Client or any third party shall be at Client's or such third party's own risk and without any liability to H-R.

H-R has used reasonable care, skill, competence and judgment in the preparation of this Report consistent with professional standards for those providing similar services at the same time, in the same locale, and under like circumstances. Unless otherwise stated, the work performed by H-R should be understood to be exploratory and interpretational in character and any results, findings or recommendations contained in this Report or resulting from the work proposed may include decisions which are judgmental in nature and not necessarily based solely on pure science or engineering. It should be noted that our conclusions might be modified if subsurface conditions were better delineated with additional subsurface exploration including, but not limited to, test pits, soil borings with collection of soil and water samples, and laboratory testing.

Except as expressly provided in this limitations section, H-R makes no other representation or warranty of any kind whatsoever, oral or written, expressed or implied; and all implied warranties of merchantability and fitness for a particular purpose, are hereby disclaimed.



APPROXIMATE SCALE (feet)

0 1000 2000



LOCATION

NOTE:

Modified from Google Earth Pro aerial photograph.

Figure 1
General Site Location
Former Portland Gasworks Site
Commercial Street
Portland, Maine

File 17J109

January, 2018

HAGER-RICHTER
Salem, NH | Fords, NJ



N

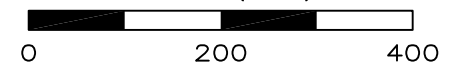


LEGEND



pVs TEST LINE
WITH MIDPOINT

SCALE (feet)



NOTE:

Modified from Google Earth Pro aerial photograph.

Figure 2
pVs Test Line Locations
Former Portland Gasworks Site
Commercial Street
Portland, Maine

File 17J109

January, 2018

HAGER-RICHTER
Salem, NH | Fords, NJ

APPENDIX F

Laboratory Test Results

Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23279G

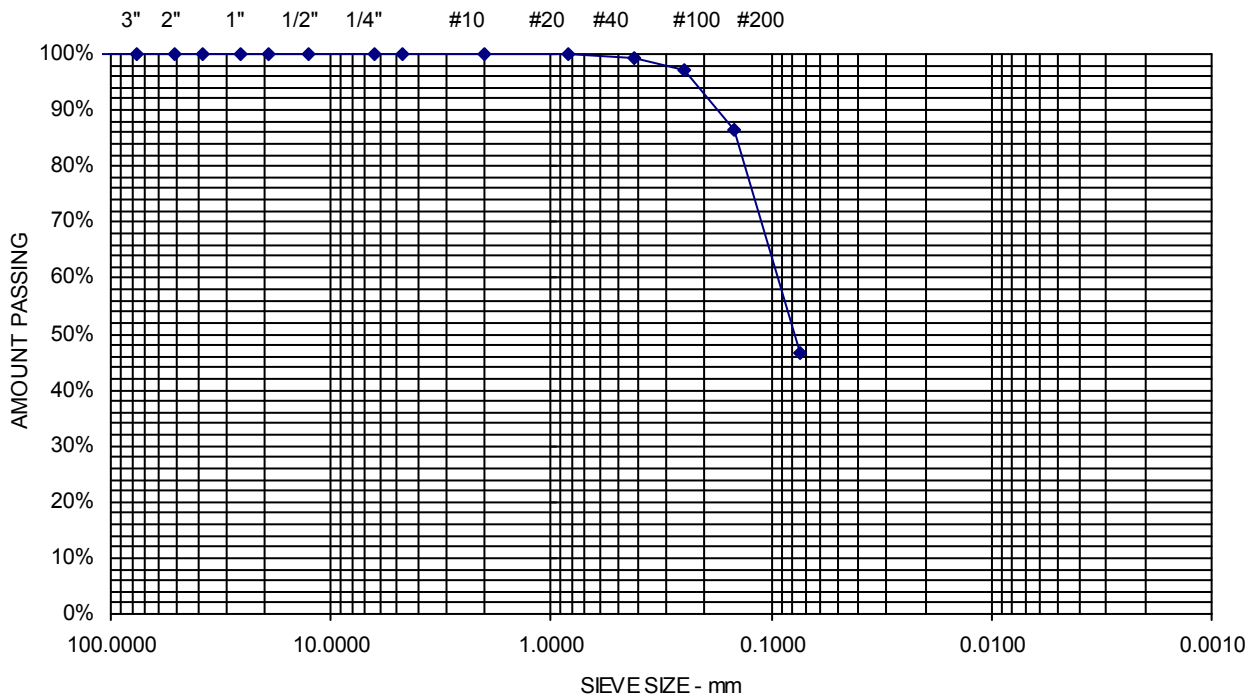
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

 Material Source **B-1001A 4D 30-32**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	99	53.3% Sand
250 μm	No. 60	97	
150 μm	No. 100	86	
75 μm	No. 200	46.7	46.7% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Material Source **B-1001A 6D 40-42**

Project Number 16-1314

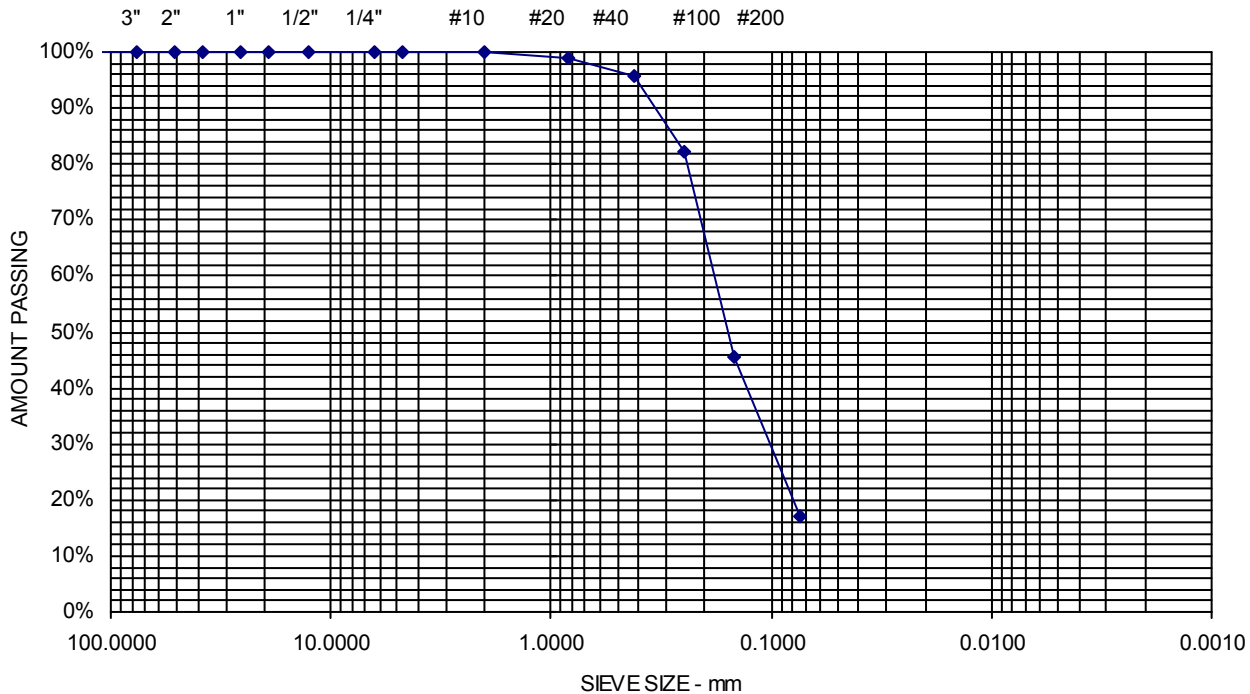
Lab ID 23280G

Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	99	
425 μm	No. 40	96	82.8% Sand
250 μm	No. 60	82	
150 μm	No. 100	46	
75 μm	No. 200	17.2	17.2% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23281G

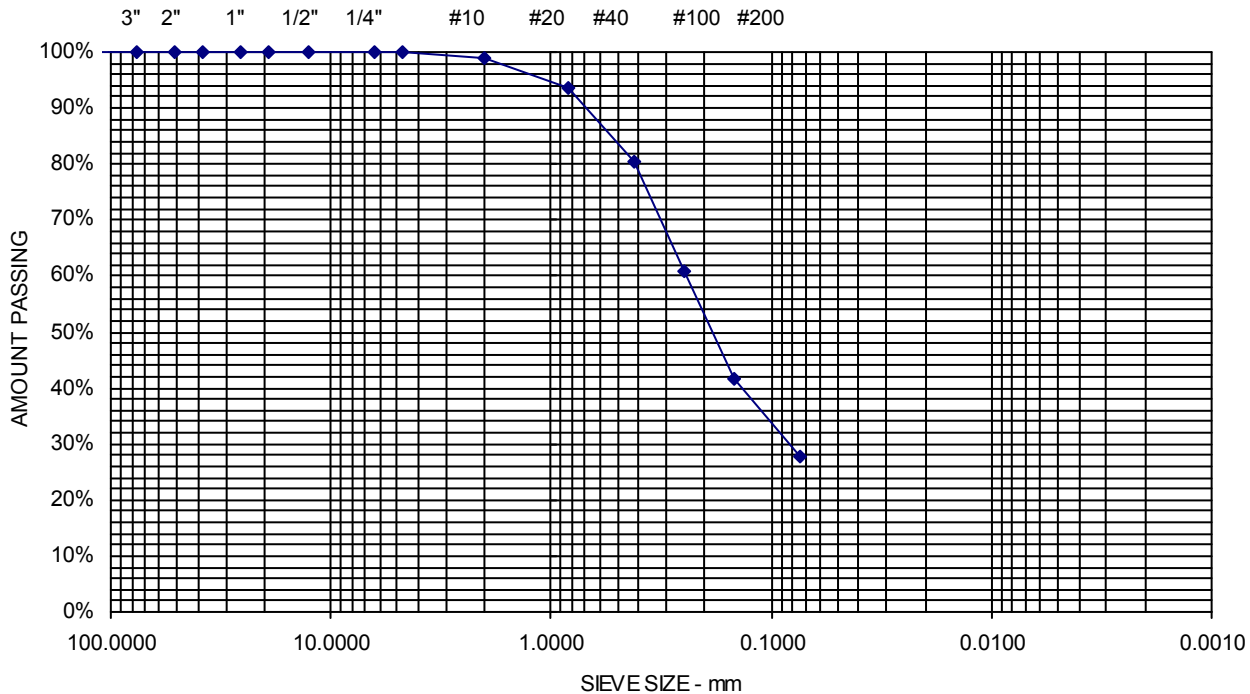
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

 Material Source **B-1001A 8D 50-52**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	99	
850 μm	No. 20	93	
425 μm	No. 40	80	72.4% Sand
250 μm	No. 60	61	
150 μm	No. 100	42	
75 μm	No. 200	27.6	27.6% Fines



Report of Gradation

ASTM C-117 & C-136

Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23283G

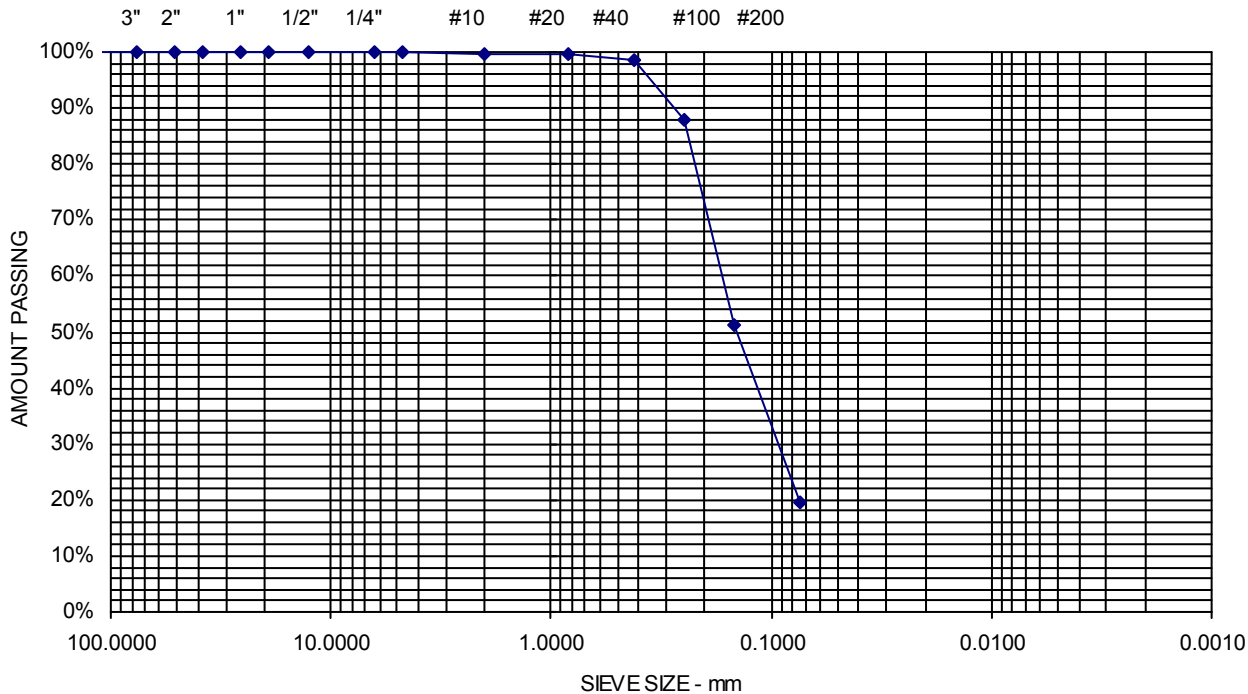
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

Material Source B-1002 6D 25-27

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	98	80.3% Sand
250 μm	No. 60	88	
150 μm	No. 100	51	
75 μm	No. 200	19.7	19.7% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23284G

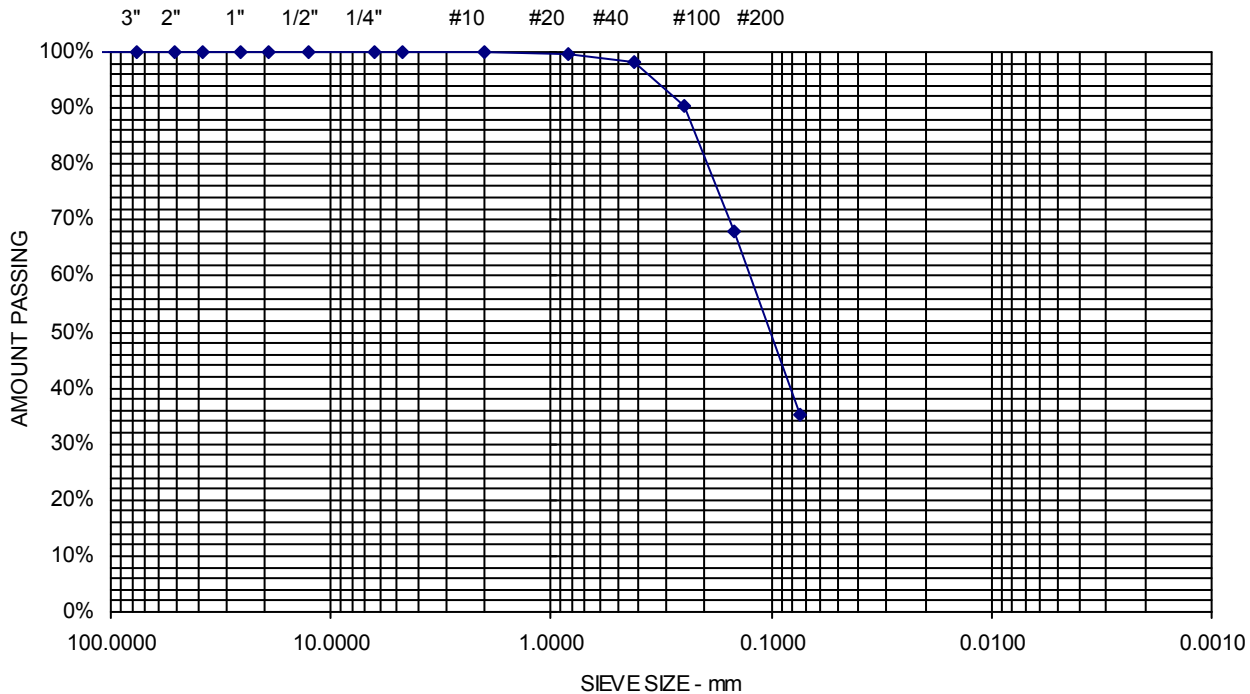
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

 Material Source **B-1002 8D 35-37**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	98	64.6% Sand
250 μm	No. 60	90	
150 μm	No. 100	68	
75 μm	No. 200	35.4	35.4% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23285G

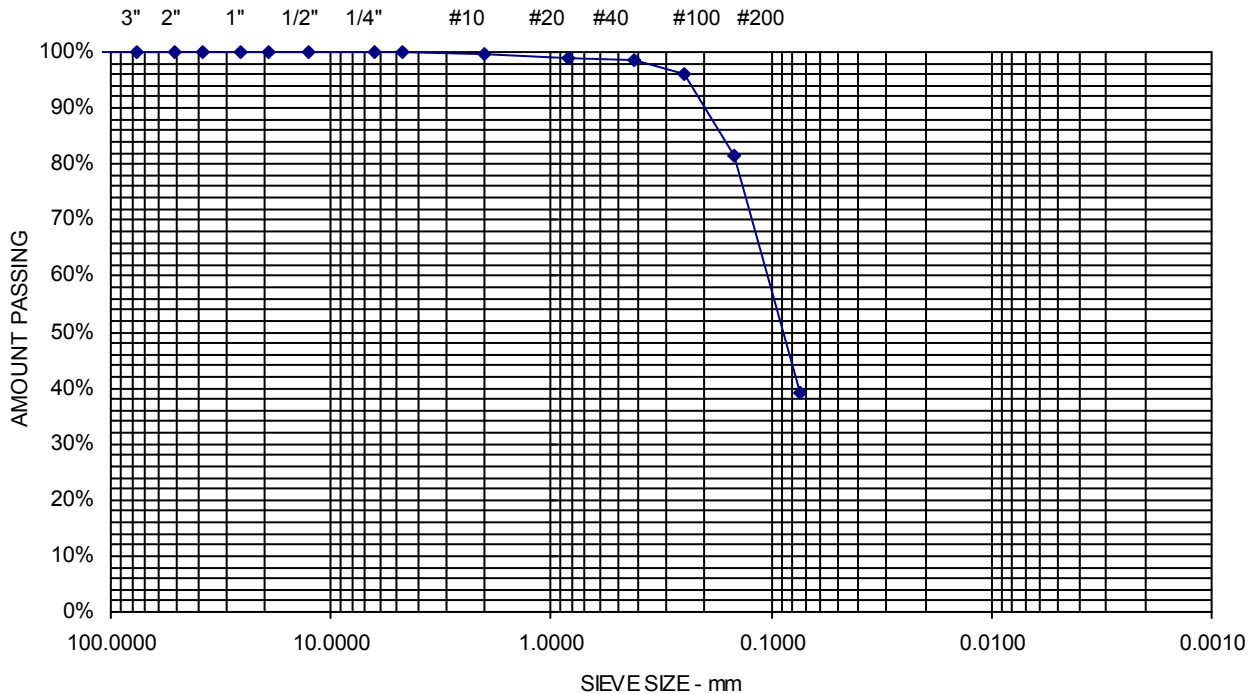
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

 Material Source **B-1002 10D 50-52**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	99	
425 μm	No. 40	98	60.9% Sand
250 μm	No. 60	96	
150 μm	No. 100	82	
75 μm	No. 200	39.1	39.1% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Material Source **B-1003 8D 65-67**

Project Number 16-1314

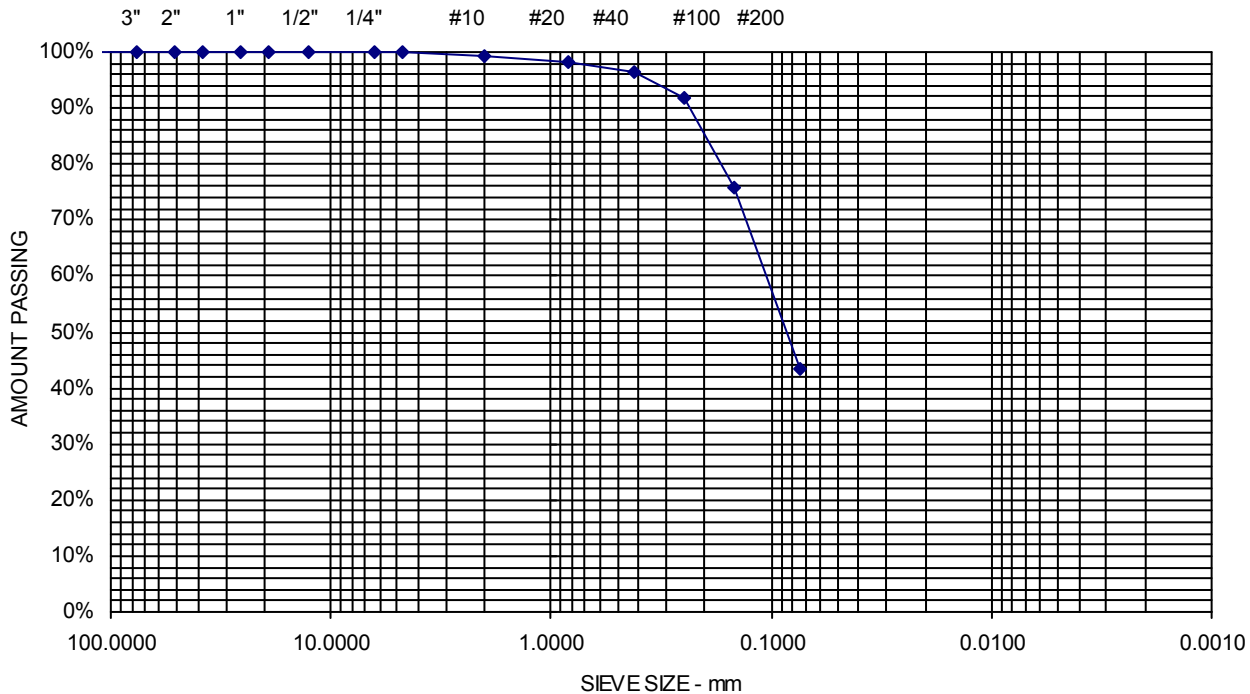
Lab ID 23288G

Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	99	
850 μm	No. 20	98	
425 μm	No. 40	96	56.5% Sand
250 μm	No. 60	92	
150 μm	No. 100	76	
75 μm	No. 200	43.5	43.5% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23289G

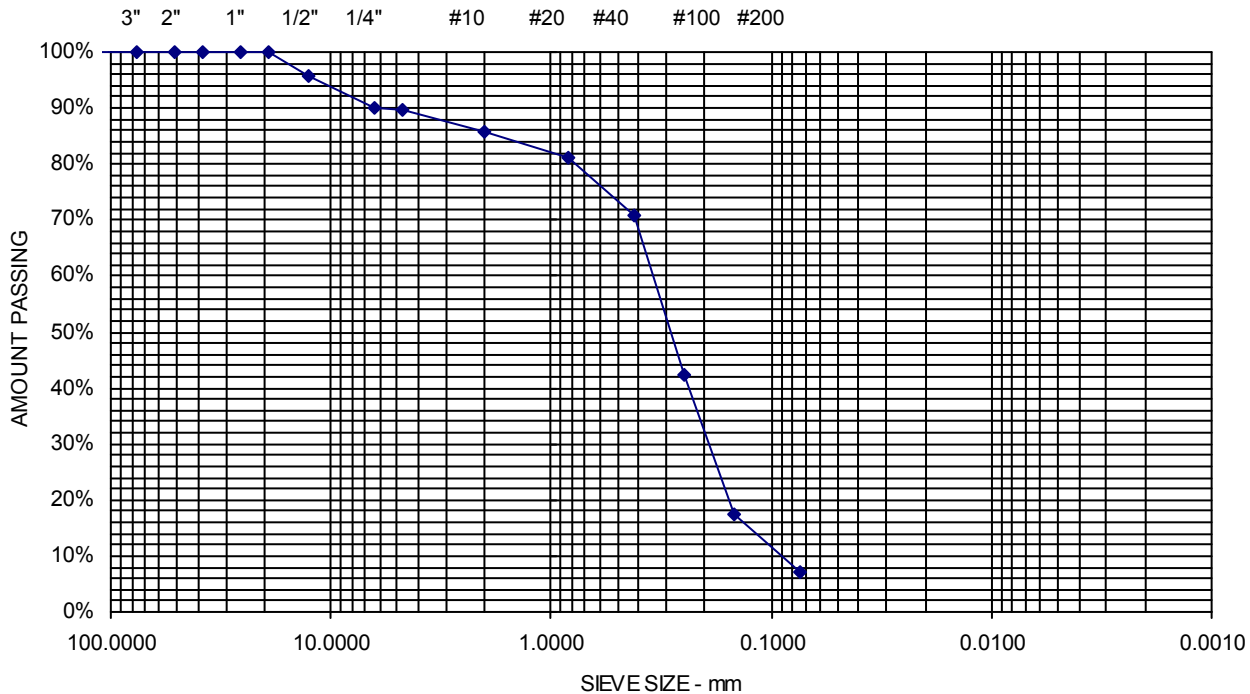
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

Material Source **B-1003 9D 70-72**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	96	
6.3 mm	1/4"	90	
4.75 mm	No. 4	90	10.3% Gravel
2.00 mm	No. 10	86	
850 μm	No. 20	81	
425 μm	No. 40	71	82.7% Sand
250 μm	No. 60	42	
150 μm	No. 100	17	
75 μm	No. 200	7.0	7% Fines

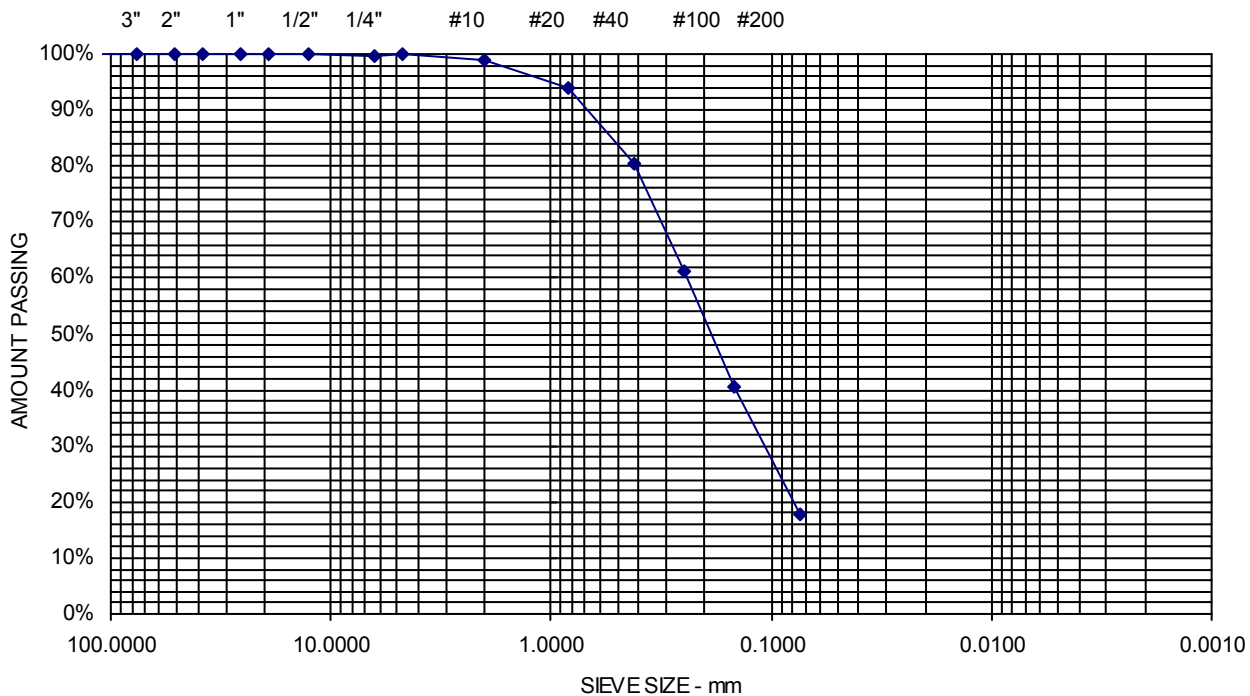


Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES
Client WOODARD & CURRAN, INC.

Project Number 16-1314
Lab ID 23290G
Date Received 12/29/2017
Date Completed 1/3/2018
Tested By PAUL SHAFFER

Material Source **B-1003 10D 80-82**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	99	
850 μm	No. 20	94	
425 μm	No. 40	81	82.2% Sand
250 μm	No. 60	61	
150 μm	No. 100	40	
75 μm	No. 200	17.8	17.8% Fines

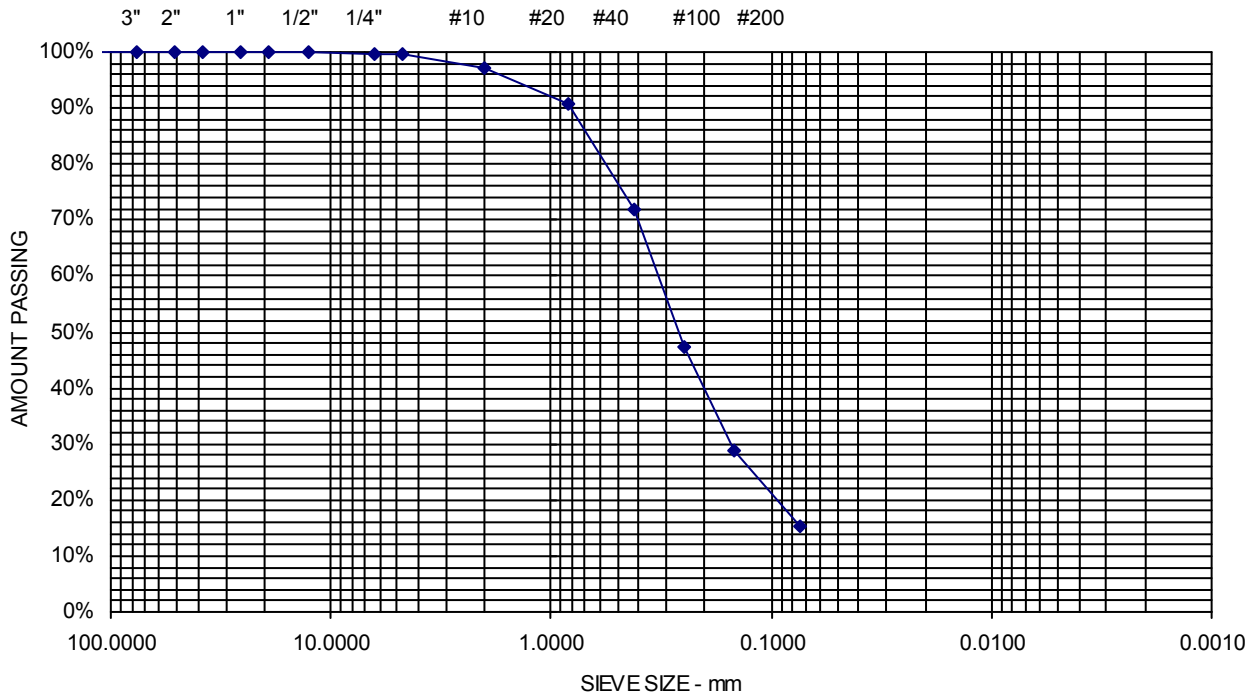


Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES
 Client WOODARD & CURRAN, INC.

Project Number 16-1314
 Lab ID 23293G
 Date Received 12/29/2017
 Date Completed 1/3/2018
 Tested By PAUL SHAFFER

Material Source **B-1004 7D 60-62**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0.5% Gravel
2.00 mm	No. 10	97	
850 μm	No. 20	91	
425 μm	No. 40	72	84.2% Sand
250 μm	No. 60	47	
150 μm	No. 100	29	
75 μm	No. 200	15.4	15.4% Fines



Report of Gradation

ASTM C-117 & C-136

Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Material Source **B-1004 9D 70-72**

Project Number 16-1314

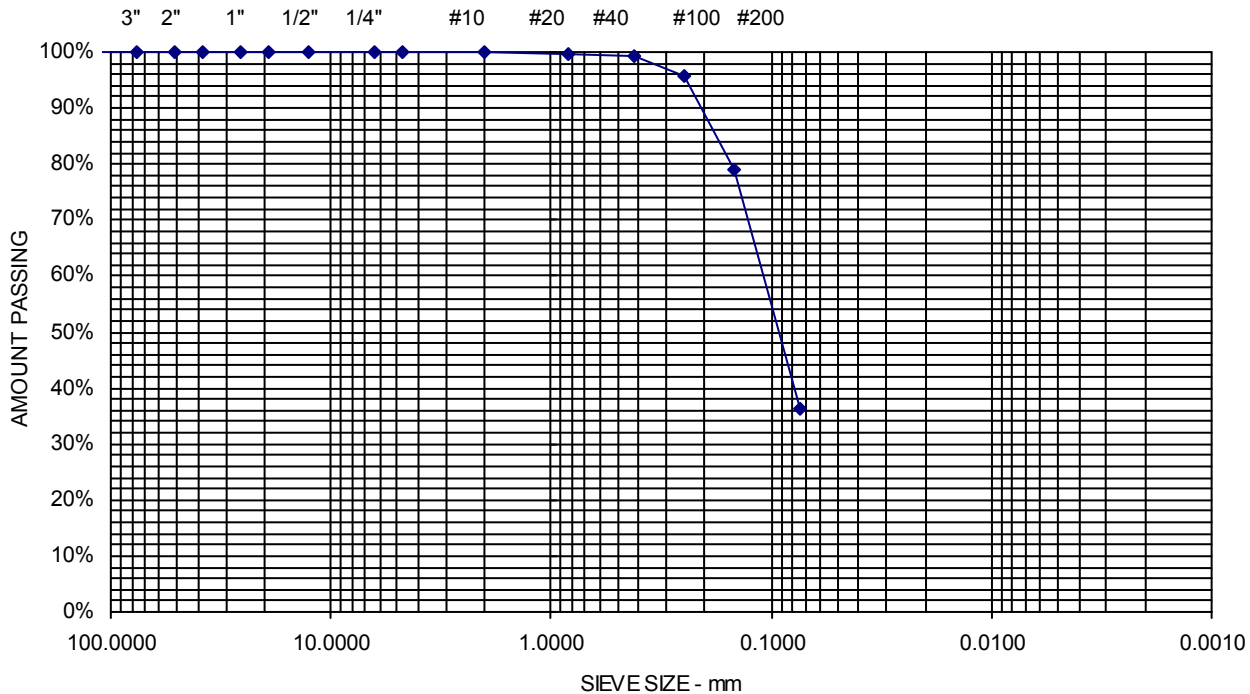
Lab ID 23294G

Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	99	63.8% Sand
250 μm	No. 60	96	
150 μm	No. 100	79	
75 μm	No. 200	36.2	36.2% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23295G

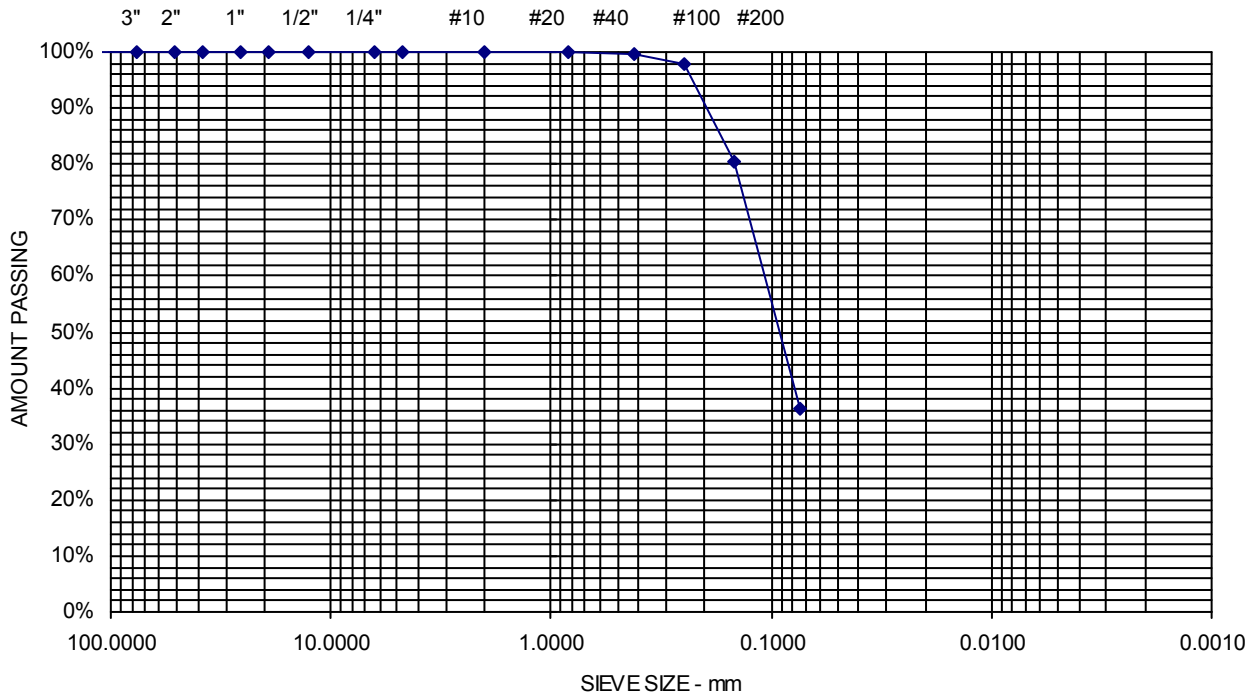
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

 Material Source **B-1004 10D 80-82**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	100	63.6% Sand
250 μm	No. 60	98	
150 μm	No. 100	80	
75 μm	No. 200	36.4	36.4% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Material Source **B-1005 8D 60-62**

Project Number 16-1314

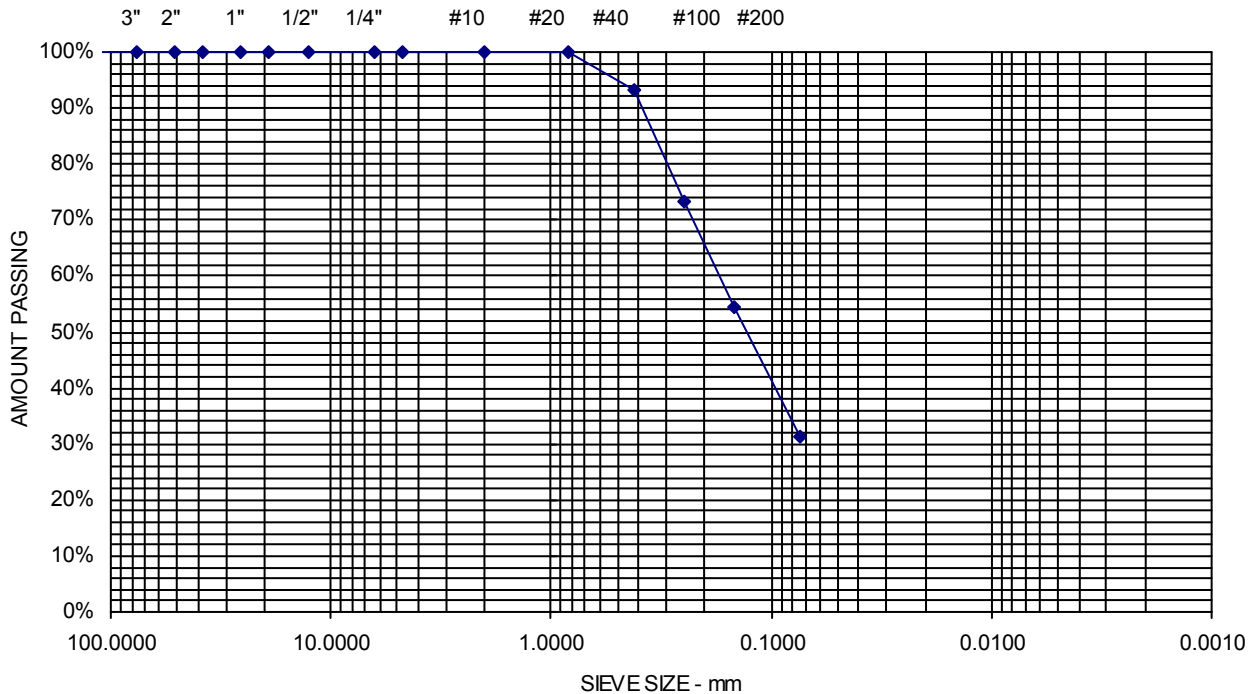
Lab ID 23298G

Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	93	68.6% Sand
250 μm	No. 60	73	
150 μm	No. 100	55	
75 μm	No. 200	31.4	31.4% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Material Source **B-1005 10D 70-72**

Project Number 16-1314

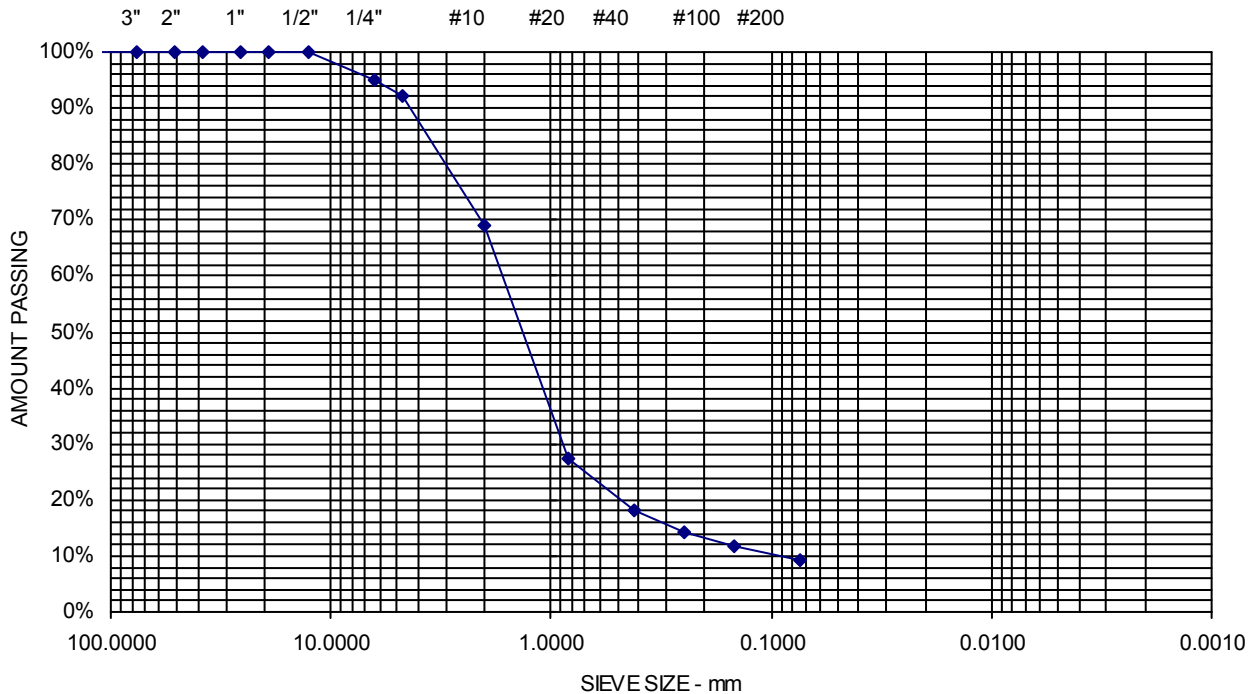
Lab ID 23299G

Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	95	
4.75 mm	No. 4	92	8% Gravel
2.00 mm	No. 10	69	
850 μm	No. 20	27	
425 μm	No. 40	18	82.8% Sand
250 μm	No. 60	14	
150 μm	No. 100	12	
75 μm	No. 200	9.2	9.2% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Material Source **B-1005 11D 80-82**

Project Number 16-1314

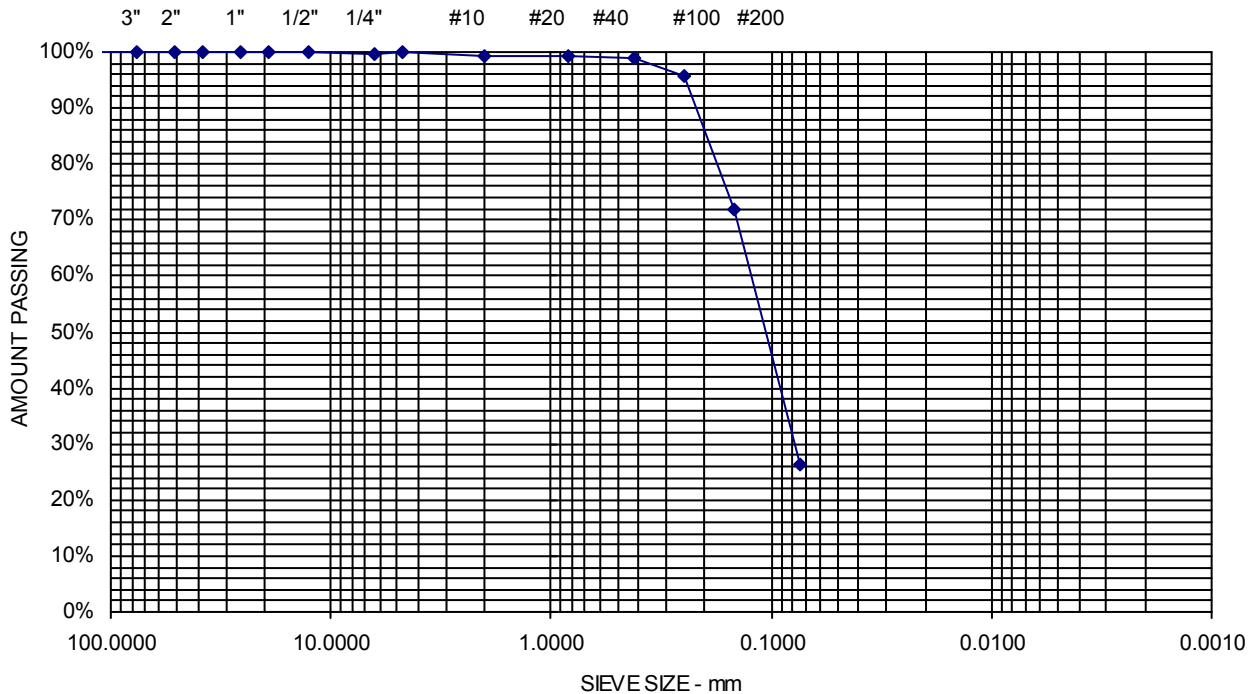
Lab ID 23300G

Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	99	
850 μm	No. 20	99	
425 μm	No. 40	99	73.6% Sand
250 μm	No. 60	96	
150 μm	No. 100	72	
75 μm	No. 200	26.4	26.4% Fines



Consolidation Test

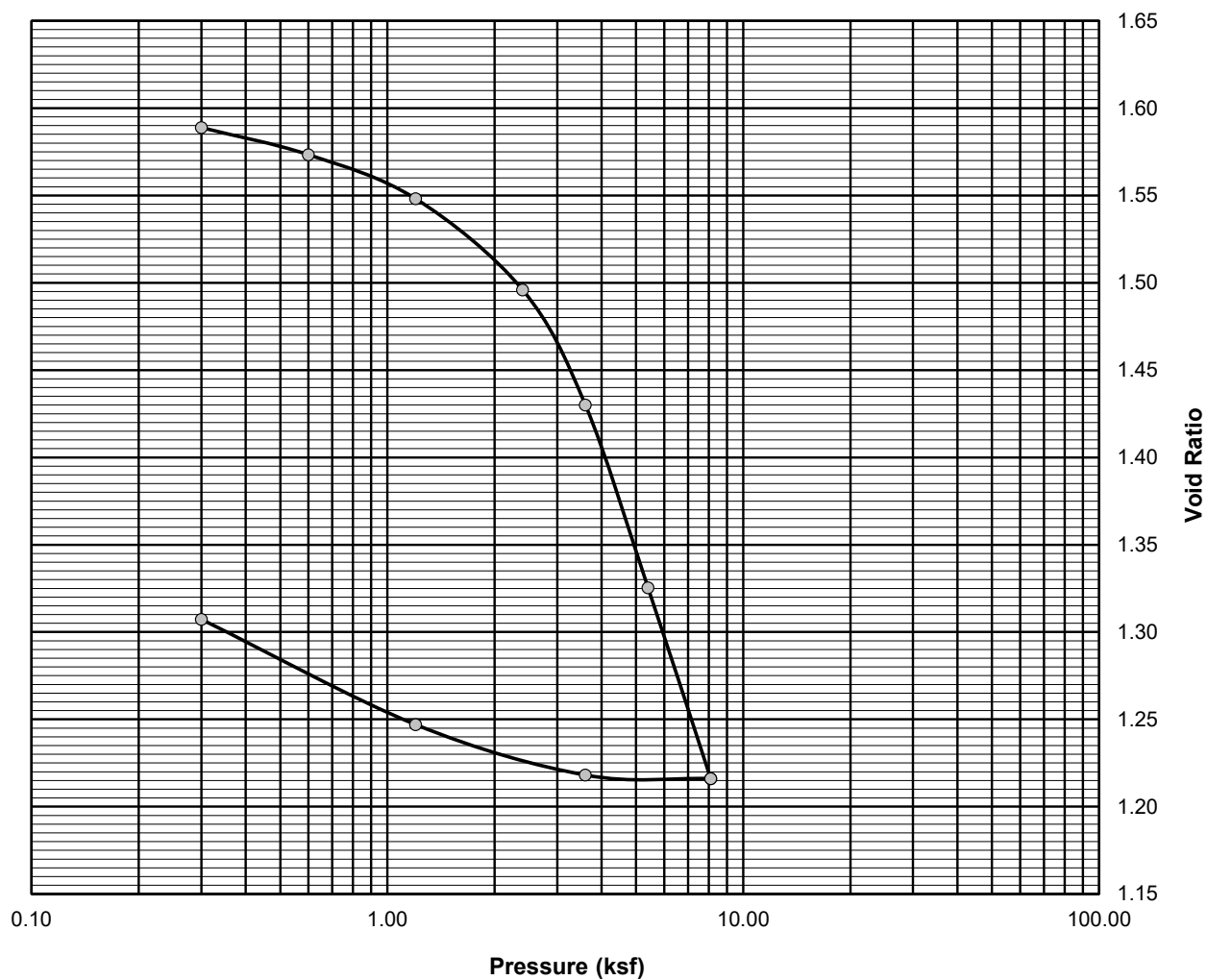
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21264B
Date: 1/30/2018

Boring: B1003
Sample: 1U
Depth: 35-37'

$P_C =$	2.7	ksf
$C_C =$	0.61	
$C_R =$	0.05	
$w =$	55.2%	
$W_L =$	55	
$W_P =$	30	



Comments:

Reviewed By



Consolidation Test

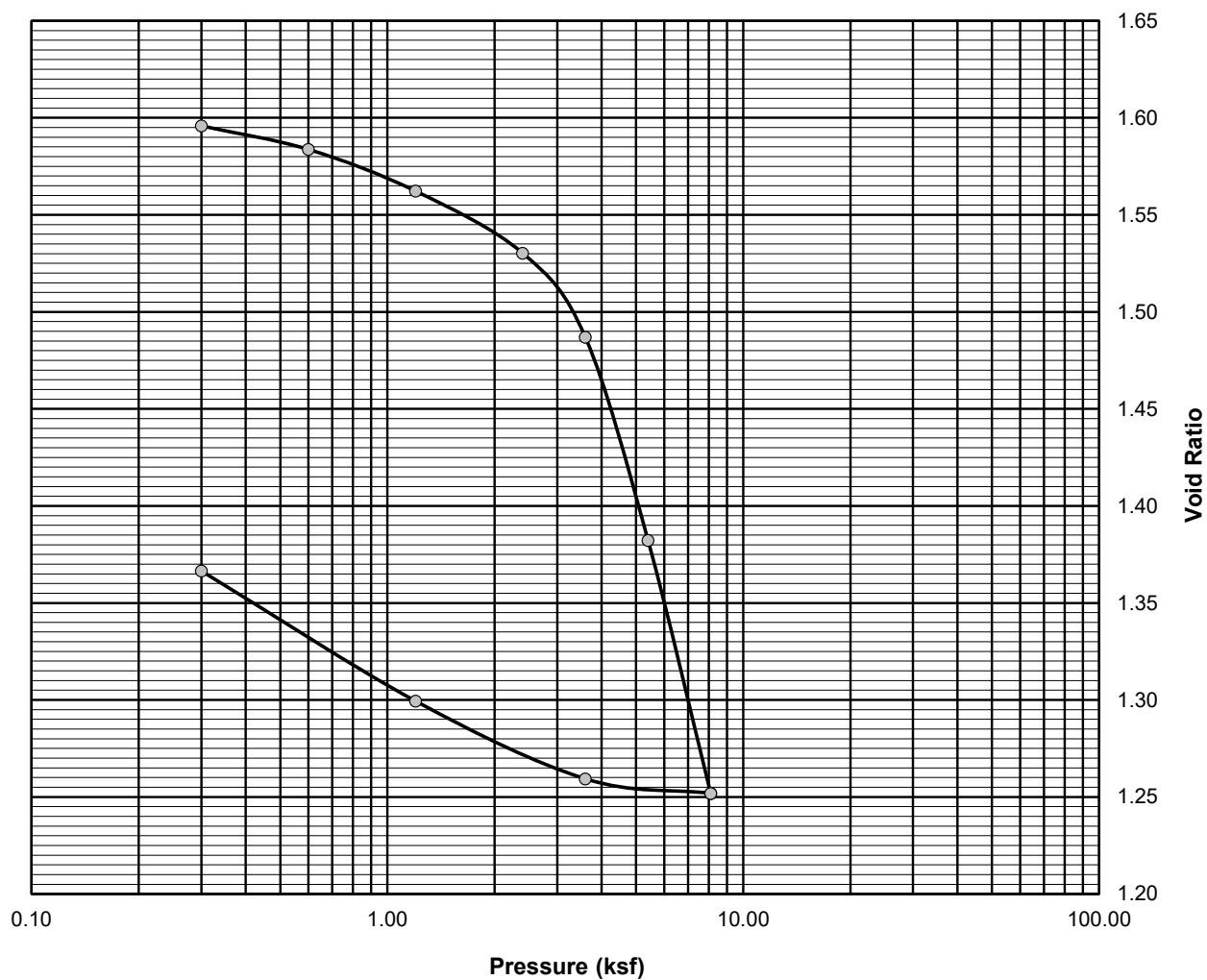
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21265B
Date: 1/30/2018

Boring: B1003
Sample: 2U
Depth: 45-47'

$P_C =$	3.1	ksf
$C_C =$	0.67	
$C_R =$	0.04	
$w =$	54.7%	
$W_L =$	48	
$W_P =$	25	



Comments:

Reviewed By



Consolidation Test

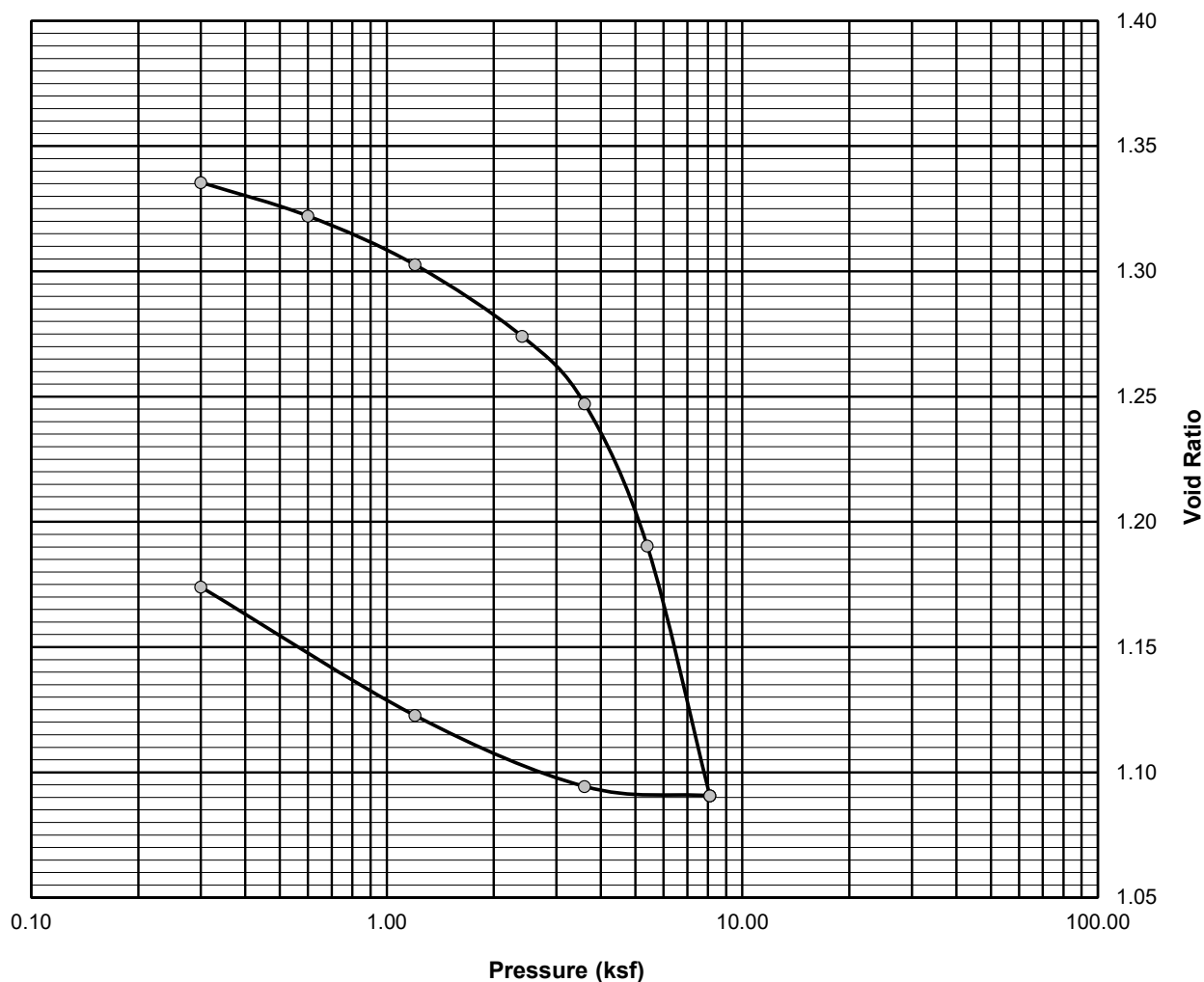
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21266B
Date: 1/30/2018

Boring: B1003
Sample: 3U
Depth: 55-57'

$P_C =$	4	ksf
$C_C =$	0.44	
$C_R =$	0.04	
$w =$	49.0%	
$W_L =$	55	
$W_P =$	27	



Comments:

Reviewed By



Consolidation Test

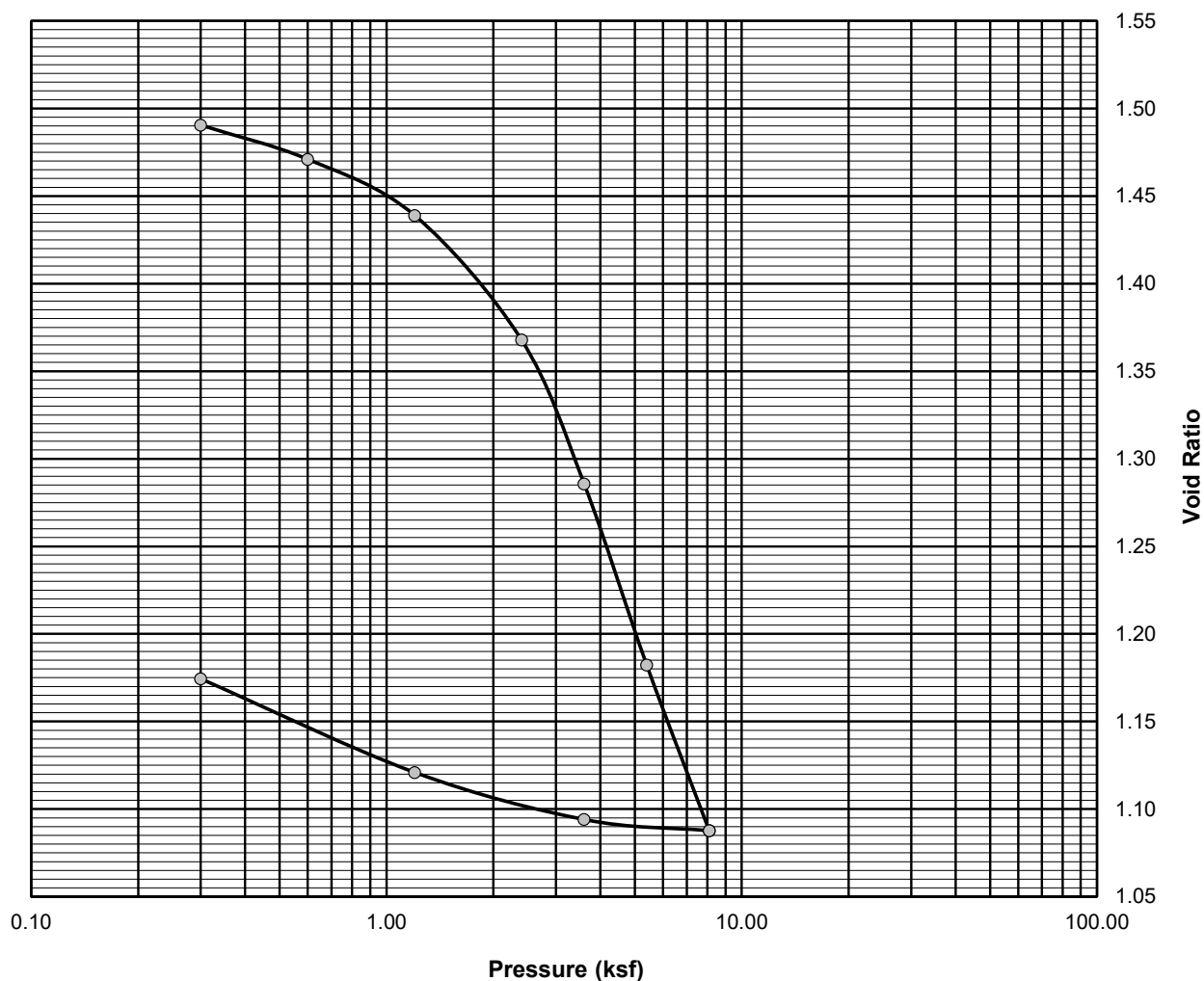
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21267B
Date: 12/29/2017

Boring: B1004
Sample: 1U
Depth: 30-32'

P_C	=	2.1	ksf
C_C	=	0.56	
C_R	=	0.06	
w	=	53.4%	
W_L	=	47	
W_P	=	48	



Comments:

Reviewed By



Consolidation Test

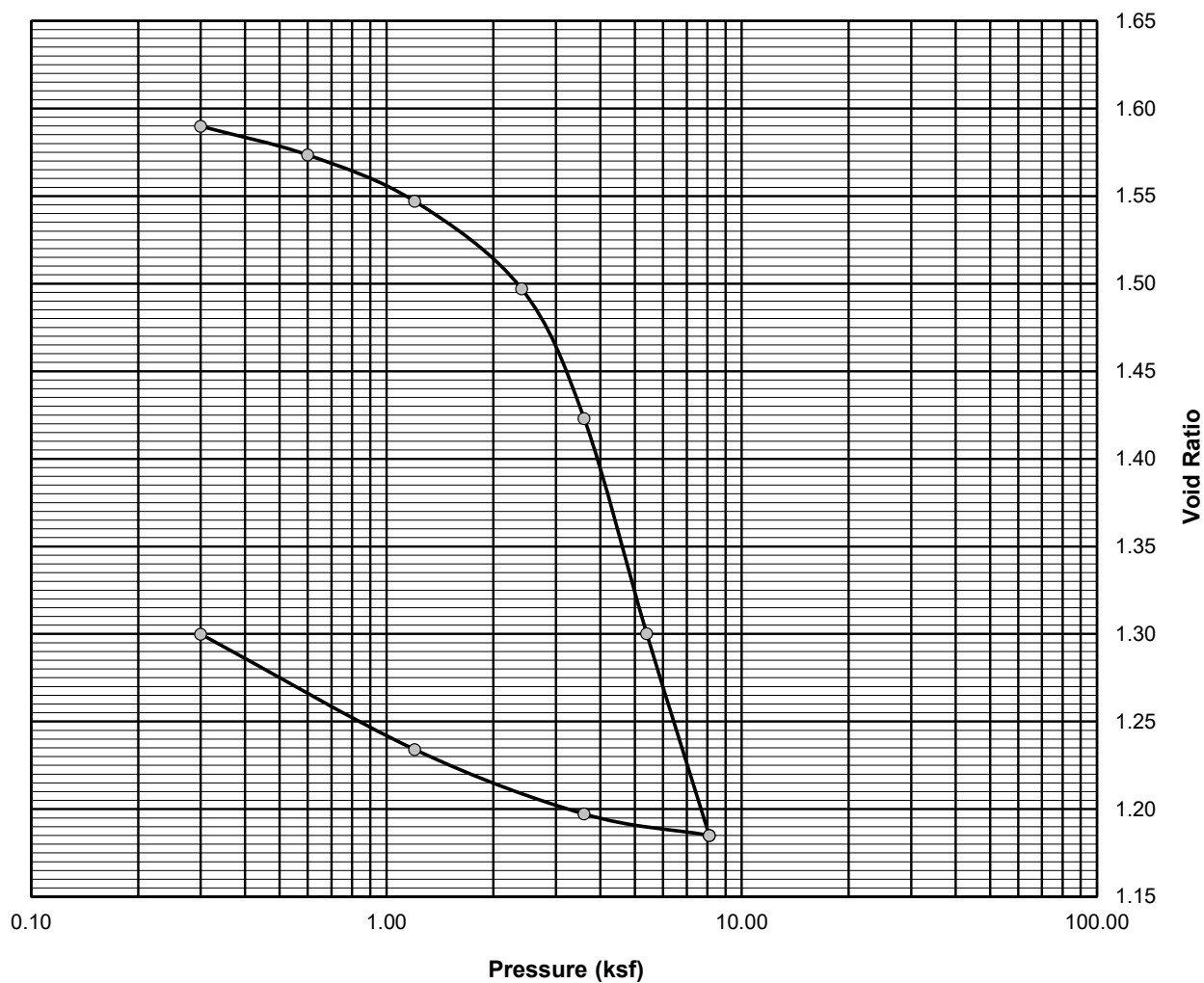
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21268B
Date: 12/29/2017

Boring: B1004
Sample: 2U
Depth: 40-42'

$P_C =$	2.9	ksf
$C_C =$	0.68	
$C_R =$	0.05	
$w =$	54.6%	
$W_L =$	53	
$W_P =$	29	



Comments:

Reviewed By



Consolidation Test

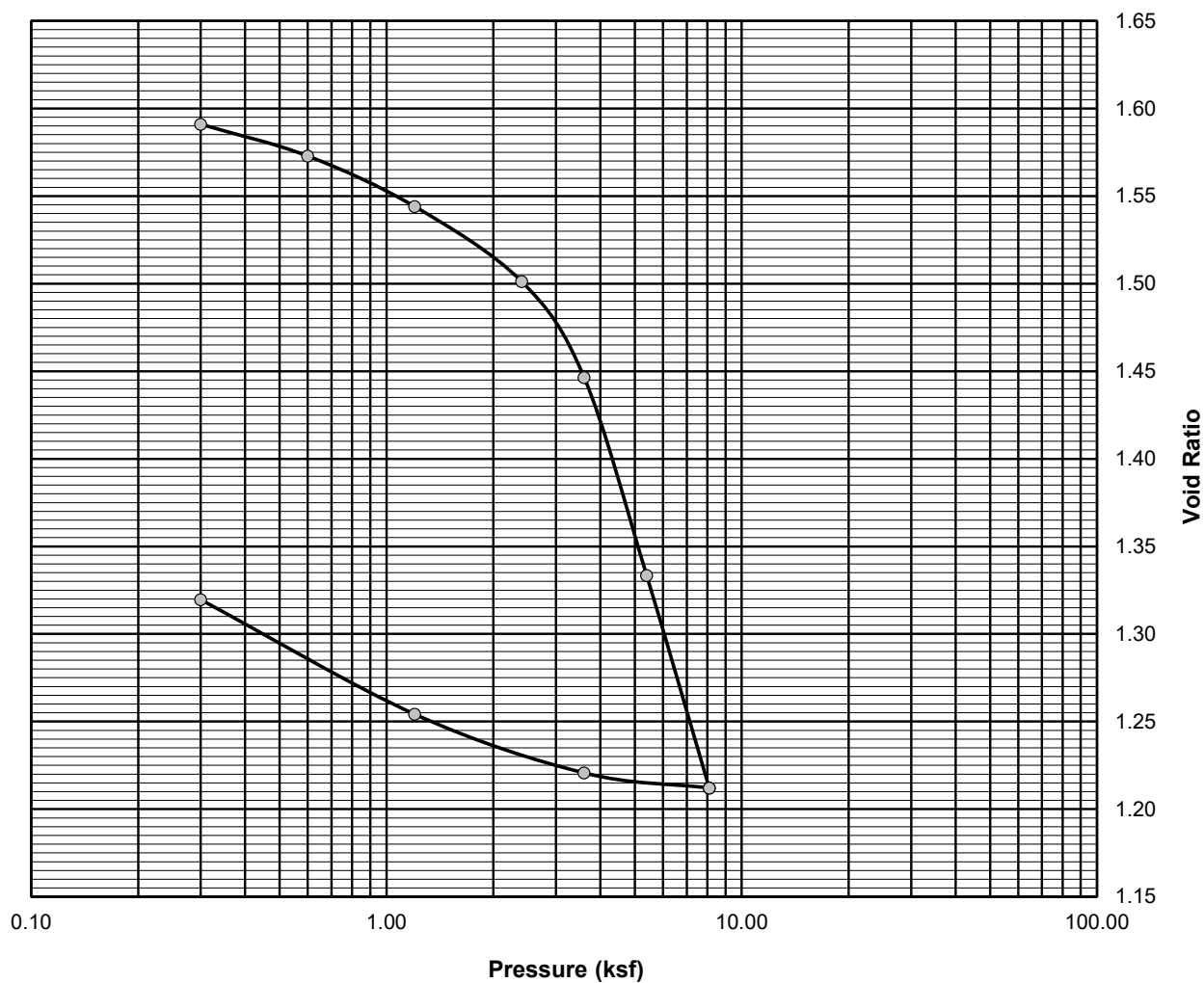
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21269B
Date: 12/29/2017

Boring: B1004
Sample: 3U
Depth: 50-52'

$P_C =$	3.1	ksf
$C_C =$	0.67	
$C_R =$	0.08	
$w =$	55.4%	
$W_L =$	55	
$W_P =$	30	



Comments:

Reviewed By



Consolidation Test

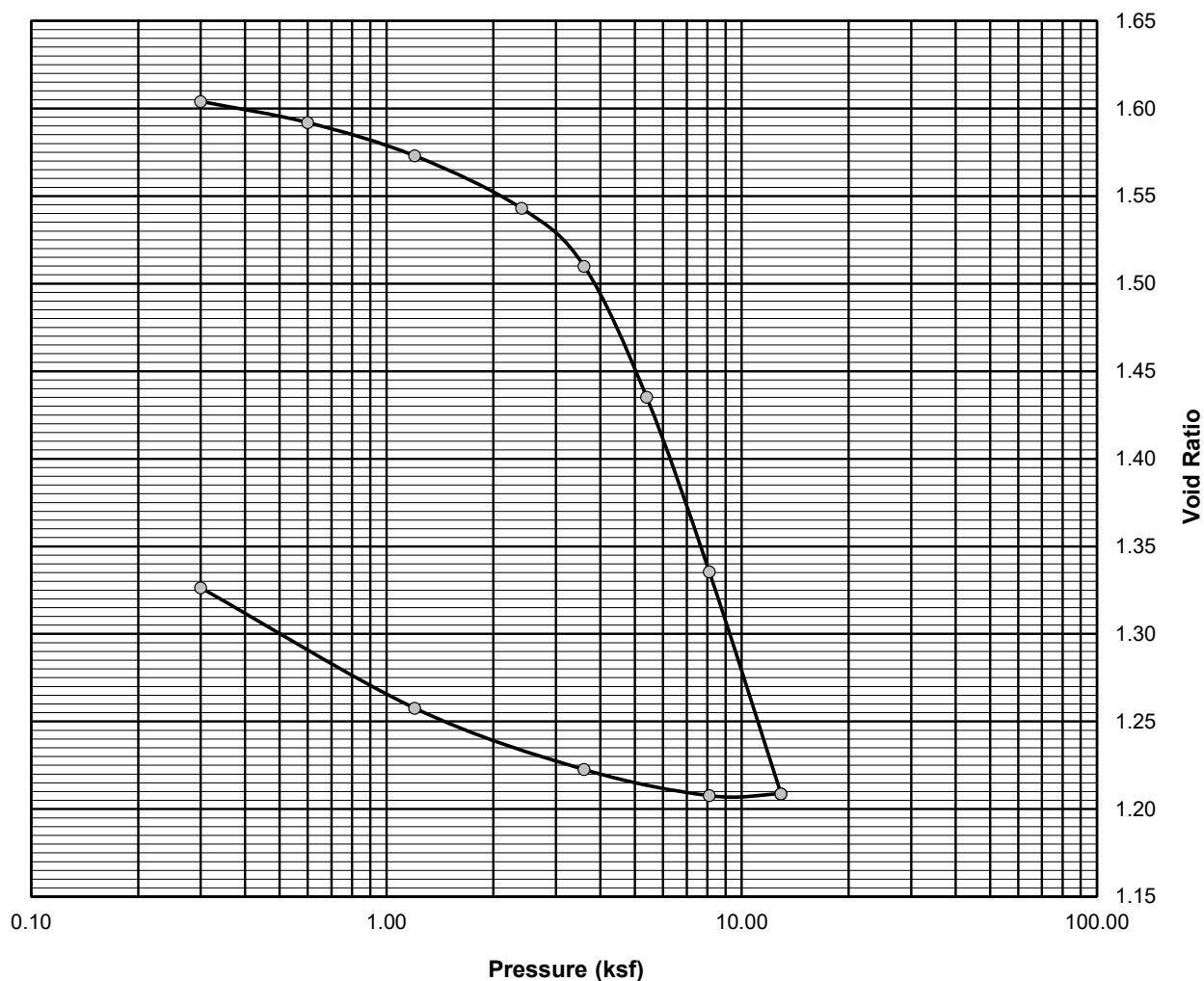
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21270B
Date: 12/29/2017

Boring: B1005
Sample: 1U
Depth: 35-37'

$P_C =$	3.8	ksf
$C_C =$	0.60	
$C_R =$	0.06	
$w =$	46.5%	
$W_L =$	49	
$W_P =$	26	



Comments:

Reviewed By



Consolidation Test

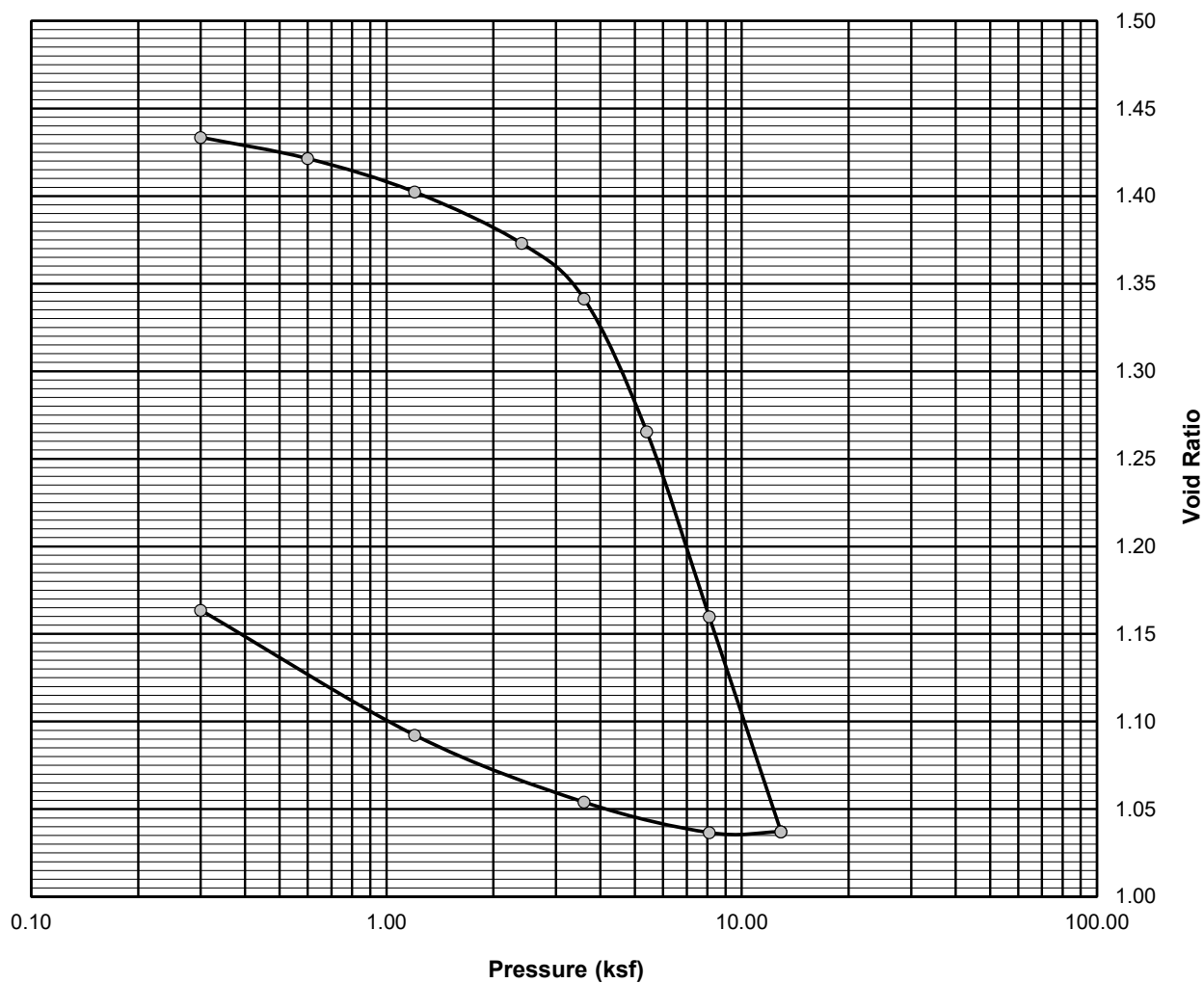
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21271B
Date: 12/29/2017

Boring: B1005
Sample: 2U
Depth: 45-47'

$P_C =$	4	ksf
$C_C =$	0.60	
$C_R =$	0.06	
$w =$	51.1%	
$W_L =$	54	
$W_P =$	29	



Comments:

Reviewed By



Consolidation Test

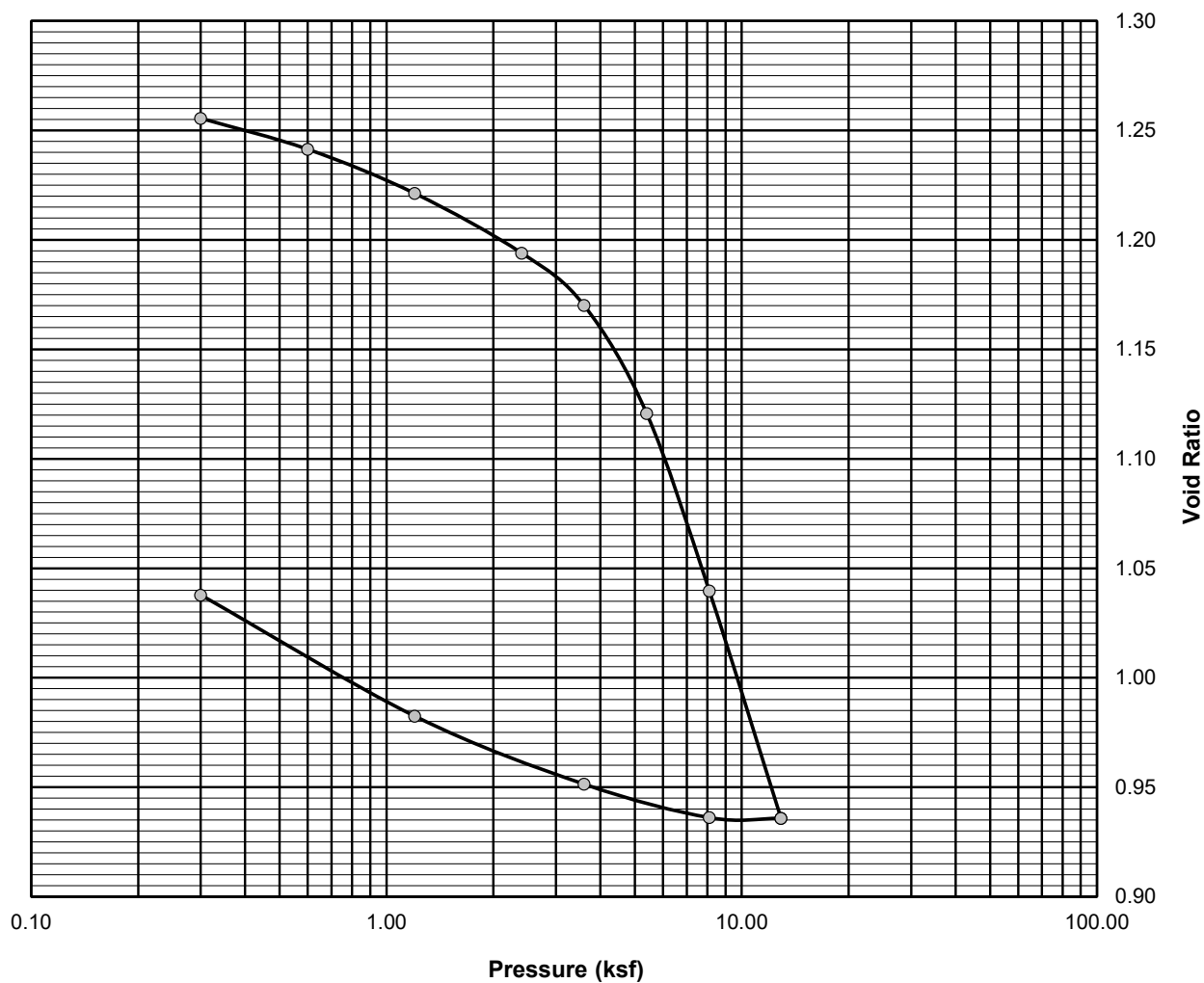
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21272B
Date: 12/29/2017

Boring: B1005
Sample: 3U
Depth: 55-57'

$P_C =$	4.3	ksf
$C_C =$	0.51	
$C_R =$	0.07	
$w =$	41.2%	
$W_L =$	43	
$W_P =$	24	



Comments:

Reviewed By





13. AVAILABILITY & ADEQUACY OF PUBLIC UTILITIES

The proposed development will be serviced by public water, sewer, gas, and electric utilities. Utility connections are described in greater detail in the following sections. The proposed locations of the utility services are shown on the Utility Plan included in the Design Drawings attached to Section 2. The proposed development will also generate waste as a result of construction and post-construction operations.

13.1 WATER

The proposed development will be provided with both fire protection water service and domestic water service as shown on the drawings via an existing water service on the property from the public water main in West Commercial Street. Woodard & Curran is working directly with the Portland Water District (PWD) to determine the appropriate design for this work. An ability to serve request letter was sent to Portland Water District; a copy of this letter is attached to this Section. An ability to serve determination will be provided upon receipt.

13.2 SEWER

The proposed development will be provided with sanitary sewer service from an existing sewer manhole on the property as shown on the drawings. The attached letter was provided to the Portland Department of Public Works to request confirmation of ability to serve the proposed development; the Wastewater Capacity Application was submitted with this letter. A copy of the City's determination will be provided upon receipt.

13.3 GAS

The proposed development will utilize natural gas service provided by Unitil. Proposed infrastructure is shown on the Utility Plan. The location and size of the gas service is being coordinated with Unitil. An ability to serve determination will be provided upon receipt.

13.4 ELECTRIC

Overhead electrical will be provided from a utility pole on West Commercial Street to the project site. Underground electrical services are provided on the project site. Proposed infrastructure is shown on the Utility Plan. The design of the electric service is being coordinated with Central Maine Power (CMP). Final electric layouts will be provided to CMP for their review and an ability to serve determination will be provided upon receipt.

13.5 SOLID WASTE

All solid waste materials and recyclables from the proposed building will be transported and disposed of or recycled in accordance with applicable laws and regulations. Solid waste removal will occur via the loading dock area accessed from the eastern parking lot adjacent to the truck bays.

13.6 CONSTRUCTION & DEMOLITION DEBRIS

The proposed development will generate construction waste and demolition debris (CDD). The Contractor will be responsible for properly disposing of the CDD. The Contractor will be responsible for handling, managing, and disposing of all waste generated by construction in accordance with the Maine Solid Waste Management Regulations and all other applicable local, state, and federal regulations.

13.1 SPECIAL & HAZARDOUS WASTE

Numerous investigations have been completed to evaluate soil, groundwater, and soil vapor conditions at the Site since 1999. In addition, several active remedial efforts have been completed to address known environmental conditions. These activities have been completed in coordination with the Maine DEP VRAP and related Spills & Site

Cleanup programs. Consistent with a Maine DEP VRAP No Action Assurance Letter (NAAL) dated June 1, 2012, the necessary steps that must be taken in order to receive closure and liability protection under the VRAP are summarized below:

1. The existing soil management plan will be revised and submitted to the Maine DEP for review and approval;
2. Any potential soil vapor issues in future on-site structures will either be addressed and characterized with investigation prior to construction or presumptively addressed through installation of vapor collection systems;
3. No potable wells will be installed on the property in the future, and;
4. The property use will remain non-residential use unless other uses are approved by the Maine DEP.

It is anticipated that the Maine DEP VRAP requirements outlined above will be fulfilled as part of the proposed project. Special and hazardous waste encountered during the construction process will be handled, managed and disposed of in accordance with the Maine DEP approved revised soil management plan and all applicable local, state and federal regulations.

13.2 ATTACHMENTS

- Portland Water District Ability to Serve Request Letter
- Portland Department of Public Works Request for Ability to Serve Letter
- City of Portland Wastewater Capacity Application



March 2, 2020

MEANS Group
Portland Water District
225 Douglass Street
Portland, ME 04104

Re: Maine International Cold Storage Facility – Request for Evidence of Ability to Serve

To Whom It May Concern:

On behalf of Maine International Cold Storage Facility LLC, Woodard & Curran is submitting this ability to serve request letter for proposed cold storage facility to be located at 40 West Commercial Street in Portland, Maine. The proposed work includes construction of a single story, 108,024 square-foot building, truck loading area, truck and employee parking areas, fire access drive, and associated site and utility improvements. The building will be comprised of roughly 91,000 square feet space for offloading and cold storage, 13,000 square feet of administrative space, and 4,000 square feet of mechanical and utility space. A fixture count spreadsheet is enclosed to assist in determining peak flow for the site. Please note two eyewash stations are proposed, but not included in the fixture count spreadsheet.

The proposed cold storage facility will require one domestic water service and one fire protection service. The proposed design includes utilization of a 130 LF segment of existing water piping for the fire protection service. This existing water pipe currently services a hydrant that will be demolished as part of the proposed project. The domestic water service is proposed to tee off from the existing water service at the site entrance on West Commercial Street. Please refer to the enclosed Utility Plan for location and size of proposed water services.

Upon completion of development, the proposed project is anticipated to require 660 gallons of water per day. This estimate is based on the preliminary design of the interior layout. We do not anticipate changes that would result in significant water usage increases, but will notify the Water District if design development results in any major changes. We intend to submit to the City of Portland Planning Department for approval of the Level III Site Plan application and will appreciate documentation regarding the Portland Water District's ability to serve the proposed development with potable water.

Please let us know if any additional information is required to evaluate the service capacity for the site or if you have any questions on our proposed layout. We appreciate your assistance and look forward to working with you further. Please do not hesitate to contact me at (207)558-3662 or dstairs@woodardcurran.com.

Sincerely,

WOODARD & CURRAN

Darrin Stairs, P.E.
Project Manager

Enclosure(s) Utility Plan
 Fixture Count Spreadsheet

PN: 0232277.00



March 2, 2020

ATTN: Bradley Roland, P.E.
Department of Public Works
212 Canco Road
Portland, ME 04103

Re: Maine International Cold Storage Facility – Request for Evidence of Ability to Serve

Dear Mr. Roland:

On behalf of Maine International Cold Storage Facility LLC, Woodard & Curran is submitting this ability to serve request letter for proposed cold storage facility to be located at 40 West Commercial Street in Portland, Maine. The proposed work includes construction of a single story, 108,024 square-foot building, truck loading area, truck and employee parking areas, fire access drive, and associated site and utility improvements. The building will be comprised of roughly 91,000 square feet space for offloading and cold storage, 13,000 square feet of administrative space, and 4,000 square feet of mechanical and utility space. Please refer to the enclosed Utility Plan for location and size of the proposed sewer service.

Upon completion, the proposed project is anticipated to discharge 600 gallons of wastewater per day to an existing sewer manhole on the property for the 42" sewer main along West Commercial Street. This estimate is based on anticipated employees (25 employees at warehouse/office with no showers), as well as truck driver use (100 drivers per day using public restroom). We do not anticipate changes that would result in significant increases but will notify the City if design development results in any major changes. We intend to submit to the City of Portland Planning Department for approval of the Level III Site Plan application and will appreciate documentation regarding the City's ability to collect wastewater from the proposed development.

Please let us know if any additional information is required to evaluate the service capacity for the site. We appreciate your assistance. If you have any questions or require any additional information, please do not hesitate to contact me at (207)558-3662 or dstairs@woodardcurran.com.

Sincerely,

WOODARD & CURRAN

Darrin Stairs, P.E.
Project Manager

Enclosure(s) Utility Plan
 Wastewater Application

PN: 0231886.00

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Portland Dept. of Public Works -
Water Resources
55 Portland Street,
Portland, Maine 04101-2991



Bradley Roland, P.E.
Water Resources Division
Department of Public Works
55 Portland Street
Portland, ME 04103

Date: March 2, 2020

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 40 West Commercial Street

Chart Block Lot Number: 059 B00A 1, 2, 5-11

Proposed Use: Cold Storage Facility
Previous Use: Manufactured/Natural Gas Facility
Existing Sanitary Flows: 0 GPD
Existing Process Flows: 0 GPD
Description and location of City sewer that is to
receive the proposed building sewer lateral.
Fore Street and Spring Street

Site Category	Commercial (see part 4 below)	☒
	Industrial (complete part 5 below)	☐
	Governmental	☐
	Residential	☐
	Other (specify)	☐

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: TBD Phone: _____
Owner/Developer Name: Maine International Cold Storage Facility, LLC c/o Matthew Dieterich
Owner/Developer Address: 40 Forest Falls Drive, Suite 2, Yarmouth, Maine 04096
Phone: (207) 817-5410 Fax: N/A E-mail: matthew.dieterich@sewall.com
Engineering Consultant Name: Woodard & Curran, c/o Darrin Stairs, PE
Engineering Consultant Address: 41 Hutchins Drive, Portland, ME 04101
Phone: (207) 558-3662 Fax: N/A E-mail: dstairs@woodardcurran.com

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: 600 GPD
Peaking Factor/ Peak Times: _____
Specify the source of design guidelines: (i.e. "Handbook of Subsurface Wastewater Disposal in Maine,"
"Plumbers and Pipe Fitters Calculation Manual," Portland Water District Records, Other (specify)
Handbook of Subsurface Wastewater Disposal in Maine

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

4. Please, Submit External Grease Interceptor Calculations.

N/A

Total Drainage Fixture Unit (DFU) Values: _____

Size of External Grease Interceptor: _____

Retention Time: _____

Peaking Factor/ Peak Times: _____

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: _____

N/A GPD

Do you currently hold Federal or State discharge permits? _____

Yes ☐ No ☒

Is the process wastewater termed categorical under CFR 40? _____

Yes ☐ No ☒

OSHA Standard Industrial Code (SIC): _____

(<http://www.osha.gov/oshstats/sicser.html>)

Peaking Factor/Peak Process Times: _____

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.



CITY OF PORTLAND
Department of Public Works
Christopher C. Branch, P.E., Director

Date: April 10, 2020

Re: Wastewater Capacity Authorization

Address: 40 West Commercial Street

Applicant: Maine International Cold Storage Facility, LLC

Planner: Christian Roadman

Anticipated Wastewater Flow:

Estimate of Anticipated Design Flows				
Development	Unit Size	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing flow to be removed				
Vacant				0
Proposed flow				
Warehouse – Office- Employees at place of employment with no showers	# Employees	25	12 GPD/Employee	300
Public Restroom – Truck Driver Use	# Per User	100	3 GPD/User	300
Net Change				+ 600
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition				

Comments:

The Department of Public Works, which includes the Water Resource Division, have reviewed and determined that the downstream sewers from the project address have the capacity to convey the estimated dry weather wastewater flows which will be generated from this development.

Please note that you will be connecting into sewer interceptors owned and managed by the Portland Water District (PWD). This request has been shared with them and special provisions for those connections will be required. Please speak with PWD directly about those connections.

You are reminded that the sewers you are proposing to connect into convey both sanitary and stormwater (Combined Sewer) and therefore a backflow preventer is suggested.

If the City can be of further assistance, please contact me at all 874-8840 or brad@portlandmaine.gov

Sincerely,

A handwritten signature in dark ink, reading "Bradley A. Roland". The signature is written in a cursive style with a large, stylized "B" and "R".

Bradley A. Roland, P.E.
Senior Project Engineer

14. SUMMARY OF FIRE CODES

The items in the Portland Fire Department Site Review Checklist are addressed as follows:

- Name, address, telephone number of applicant
 - Maine International Cold Storage Facility, LLC, c/o Matthew Dieterich
 - 40 Forest Falls Drive, Suite 2, Yarmouth, Maine 04096
 - (207) 817-5410
- Name, address, telephone number of architect
 - CWS Architects c/o Guy Labrecque
 - 264 US Route One, Suite 100-2A, Scarborough, ME 04074
 - (207) 774-4441
- Proposed uses of any structures [NFPA and IBC classification]
 - The main cooler and dock areas will be considered S-2 Low Hazard Storage while the remaining areas will be considered Business Use spaces (2015 IBC).
- Square footage of all structures [total and per story].
 - The 108,024 square-foot building will be a single-story structure with varying roof heights. The building will be comprised of roughly 91,000 square feet space for offloading and cold storage, 13,000 square feet of administrative space, and 4,000 square feet of mechanical and utility space as shown on the architectural design drawings attached to Section 1.
- Elevations of all structures
 - This information is provided on the attached plan set.
- Proposed fire protection of all structures
 - A one-hour fire barrier separation is expected between uses based upon providing a full sprinkler system within the building.
- Hydrant locations
 - Two existing hydrants exist on the 17.9-acre site. One of the hydrants is located within the proposed building footprint and will be demolished. The other hydrant is located approximately 140 feet north of the northeast of the proposed building by West Commercial Street.
- Water main size and location
 - Existing and proposed watermain locations are shown on the civil design plans attached to Section 1 of this Report.
- Access to all structures [min. 2 sides]
 - As shown on the plan set, a 24-foot wide fire access road is proposed around the building to the west and south along the Fore River, with “knox box” gated accesses located near the passenger car parking areas and the truck parking areas. Emergency vehicles will have access to all four sides of the building.

- A code summary shall be included referencing NFPA 1 and all fire department technical standards.
 - The building will be designed and built to conform with all applicable codes including but not limited to the following:
 1. Federal, State and Local MUBEC codes and regulations.
 2. The International Building Code 2015 (IBC)
 3. The International Energy Conservation Code 2009 (IECC)
 4. ASHREA standards 61.1, 62.2 and 90.1 (2013)
 5. NFPA 1, 2018
 6. NFPA 101 - 2012
 7. NFPA 101 - 2018
 8. NFPA 70 - national electrical code - 2017
 9. NFPA 72 - national fire alarm code - 2019
 10. Maine State Plumbing Code
 11. The National Electrical Code 2014
 - Compliance approach:
 - The building will be designed based upon a “separated use” methodology.
 - The main cooler and dock areas will be considered S-2 Low Hazard Storage while the remaining areas will be considered Business Use spaces. A 1-hour fire barrier separation is expected between these uses based upon providing a full sprinkler system within the building.
 - A fire alarm system will be incorporated into the design
 - The space configurations and egress will be designed to fall within the following limitations.
 - Business Use/Occupancy: Both IBC and NFPA 101 align with the following
 - Exit Access Travel Distance: 300’
 - Common Path of Travel: 100’
 - Dead End Corridor Length: 50’
 - Low Hazard Storage Use/Occupancy: Both IBC and NFPA 101 align with the following U.N.O.
 - Exit Access Travel Distance: 400’
 - Common Path of Travel: 100’
 - Dead End Corridor Length: 50’ (IBC) and 100’(NFPA 101)
 - Height and Area:
 - Proposed Construction Type: Type IIB
 - Maximum Building Height: 75’-0” w/ Sprinkler System (The Zoning Ordinance is 75’-0”)
 - Maximum Allowable Building Area (Table 506.2):

S-2, Type IIB: 104,000 s.f.

B, Type IIB: 92,000 s.f.

- Frontage Increase:

$$W = 30'-0"$$

$$If = [F/P - 0.25] W/30$$

$$If = [1424/1424 - 0.25] 30/30 = .75$$

- Allowable Area Calculation: $Aa = At + (NS \times If)$

$$S-2: Aa = 104,000 + (26,000 \times .75) = 123,500$$

$$B: Aa = 92,000 + (23,000 \times .75) = 109,250$$

$$\text{Actual S-2: } 90,585 + \text{Actual B: } 16,016 = .88 \text{ (less than 1)}$$

$$\text{Allowable S-2: } 123,500 \quad \text{Allowable B: } 109,250$$

The proposed building area conforms to the IBC 2015 allowable area.



May 18, 2020

Christian Roadman, Planner
City of Portland Planning Division
389 Congress Street
Portland, ME 04101

Re: Maine International Cold Storage Facility Level III Site Plan Submittal
Stormwater Management Report Revisions.

Dear Christian:

Thank you for coordinating the review of the proposed Maine International Cold Storage Facility located at 40 West Commercial Street in Portland, Maine. As site design has advanced since our previous submission on March 13, 2020, several changes have been made to the site that impact the stormwater management design, including modifications to the limit of work and redevelopment area, changes to impervious area from reconfiguration of sidewalks, concrete equipment pads and adjacent landscaping; relocation of the subsurface R-Tank storage system and treatment device; and modifications to the storm drainage pipe network. Revised design drawings reflecting these changes have been uploaded to Eplan.

Based on the attached revised water quality calculations, the proposed project continues to be required to provide treatment for 60% of the redevelopment area. Approximately 85% of the redevelopment area will be captured and the proposed stormwater management system will treat a volume of stormwater greater than the required water quality volume. Higher pollutant ranking areas will be captured and treated in their entirety (medium use road, medium use parking and flat roof), with exception to a few segments of the fire access road, which is not anticipated to see much traffic. Revised water quality calculations and an updated HydroCAD report are attached to this letter.

Please note that there is an area north of the proposed building where existing pavement will be disturbed to install utility services for the proposed building. The existing drainage patterns and grades will not be changed in this area and the impact is only due to utility installation. It is our understanding that this work is considered maintenance and not redevelopment; therefore, this area was excluded from the redevelopment calculations. The portion of this area converted from pavement to landscaping was included in the redevelopment area due to change in land cover. Revised Drainage Area and Redevelopment Area Figures are attached to this letter.

Adequate provisions have been made to collect stormwater runoff from the project area via a series of catch basins and inlets, which drain to an underground R-Tank Storage system designed to store the Water Quality Volume prior to treatment. The R-Tank Storage system was relocated south of the proposed building to reduce traffic and loading impacts and to capture a greater percentage of high-pollutant ranking area including the employee parking lot west of the proposed building and the western half of the warehouse roof.

The water quality treatment device for the site will be a StormFilter Vault (instead of a Jellyfish Filter). The proposed StormFilter has been sized to accommodate the water quality flow from 1-inch of runoff over 60% of the drainage area. Larger storm events will bypass the filter cartridges via a separate outlet control structure with an internal weir. A letter demonstrating that the design of the StormFilter has been reviewed and approved by the manufacturer is attached to this letter. The attached Operations and Maintenance Plan has been revised to document the change in treatment device.

If you have any questions or require additional information, please do not hesitate to contact me at (207) 558-3662 or by email at dstairs@woodardcurran.com.



Sincerely,

WOODARD & CURRAN INC.

Darrin Stairs, PE
Project Manager

Enclosures: Revised Design Drawings (uploaded to Eplan)
Revised Operations and Maintenance Plan
Revised Water Quality Calculations
Contech Design Review Letter
Revised HydroCAD Model
Revised Drainage Area and Redevelopment Area Figures

STORMWATER INSPECTION & MAINTENANCE PLAN

Maine International Cold Storage Facility – 40 West Commercial Street, Portland, Maine

General inspection and maintenance during and after construction must take place in accordance with the requirements outlined in Appendix B of the Maine Department of Environmental Protection (MaineDEP) Chapter 500 Rules. Upon completion of the project, the Owner will assume responsibility for overseeing the property, including the inspection and maintenance of the Site's stormwater drainage system and treatment measures outlined herein. A person with knowledge of stormwater management and erosion and sediment control, including the standards and conditions in the permit, shall conduct the inspections and perform maintenance of the facilities.

Inspection and maintenance activities will be performed per the attached checklist, schedule, and manufacturer guidelines; an example page of the BMP Maintenance Log that shall be kept on-site is also attached.

INSPECTION AND MAINTENANCE OF STORMWATER SYSTEMS

Trash, debris, and sediment shall be removed from stormdrain pipes and catch basins as needed on a semi-annual basis. In addition to the inspection and maintenance of stormwater systems, paved areas will be inspected annually each spring. These areas will be kept clean and clear through periodic sweeping and winter plowing as required. Inspections will also ensure pavement markings are repainted as needed to maintain proper traffic circulation. Paved areas will be plowed and sanded as often as necessary to maintain public safety. Periodic sweeping of pavement will reduce the amount of sediment available to enter the stormwater systems, in turn reducing the need to clean the stormwater systems. The R-Tank and StormFilter systems must be inspected and maintained per the manufacturer's guidelines, which are outlined in the attached guidance documents.

STORMWATER INSPECTION CHECKLIST

Inspection by: _____

Date: _____

Stormwater Management Feature	Condition						Comments
Vegetative cover	no bare spots, no evidence of rill erosion		some bare spots, some rill erosion		large bare areas, extensive erosion		
Subsurface Drainage System	no siltation		some siltation		heavily silted in		
Subsurface Drainage System	no clogging/flooding		some clogging/flooding		heavy clogging/flooding		
Subsurface Drainage System	outlet free of erosion		some erosion at outlet		outlet heavily eroded		
Subsurface Drainage System	inlet/outlet clear		some debris		completely blocked		
StormFilter System*	Cartridges are in good condition		Cartridges in need of cleaning		Cartridges in need of replacement		
StormFilter System*	no clogging/flooding		some clogging/flooding		heavy clogging/flooding		

**See attached manufacturer's guidelines for StormFilter System maintenance and inspection.*

Recommended Actions: _____

Actions Completed: _____ Date: _____

MAINTENANCE TASKS	SCHEDULE
Inspect for sediment accumulation	Spring and Fall
Remove sediment accumulation	As needed
Clean debris	As needed
Inspect for erosion	As needed
Reestablish vegetation in erosion areas	Early spring
Replace stone rip-rap	Every 3 – 5 years as needed
Inspect structural elements during wet weather and compare to as-built plans	Annually
Make adjustments or replacements as determined by wet weather observations	As needed
Keep records of all inspections and maintenance activities	Annually
Have a professional engineer perform emergency inspections upon identification of severe problems	As needed



R-TANK OPERATION, INSPECTION & MAINTENANCE

Operation

Your ACF R-Tank System has been designed to function in conjunction with the engineered drainage system on your site, the existing municipal infrastructure, and/or the existing soils and geography of the receiving watershed. Unless your site included certain unique and rare features, the operation of your R-Tank System will be driven by naturally occurring systems and will function autonomously. However, upholding a proper schedule of Inspection & Maintenance is critical to ensuring continued functionality and optimum performance of the system.

Inspection

Both the R-Tank and all stormwater pre-treatment features incorporated into your site must be inspected regularly. Inspection frequency for your system must be determined based on the contributing drainage area, but should never exceed one year between inspections (six months during the first year of operation).

Inspections may be required more frequently for pre-treatment systems. You should refer to the manufacturer requirements for the proper inspection schedule.

With the right equipment your inspection and measurements can be accomplished from the surface without physically entering any confined spaces. If your inspection does require confined space entry, you **MUST** follow all local/regional requirements as well as OSHA standards.

R-Tank Systems may incorporate Inspection Ports, Maintenance Ports, and/or adjoining manholes. Each of these features are easily accessed by removing the lid at the surface. With the cover removed, a visual inspection can be performed to identify sediment deposits within the structure. Using a flashlight, ALL access points should be examined to complete a thorough inspection.

Inspection Ports

Usually located centrally in the R-Tank System, these perforated columns are designed to give the user a base-line sediment depth across the system floor.

Maintenance Ports

Usually located near the inlet and outlet connections, you'll likely find deeper deposits of heavier sediments when compared to the Inspection Ports.

Manholes

Most systems will include at least two manholes - one at the inlet and another at the outlet. There may be more than one location where stormwater enters the system, which would result in additional manholes to inspect.

Bear in mind that these manholes often include a sump below the invert of the pipe connecting to the R-Tank. These sumps are designed to capture sediment before it reaches the R-Tank, and they should be kept clean to ensure they function properly. However, existence of sediment in the sump does **NOT** necessarily mean sediment has accumulated in the R-Tank.

After inspecting the bottom of the structure, use a mirror on a pole (or some other device) to check for sediment or debris in the pipe connecting to the R-Tank.

R-TANK OPERATION INSPECTION & MAINTENANCE

If sediment or debris is observed in any of these structures, you should determine the depth of the material. This is typically accomplished with a stadia rod, but you should determine the best way to obtain the measurement.

All observations and measurements should be recorded on an Inspection Log kept on file. We've included a form you can use at the end of this guideline.

Maintenance

The R-Tank System should be back-flushed once sediment accumulation has reached 6" or 15% of the total system height. Use the chart below as a guideline to determine the point at which maintenance is required on your system.

R-Tank Unit	Height	Max Sediment Dept
Mini	9.5"	1.5"
Single	17"	3"
Double	34"	5"
Triple	50"	6"
Quad	67"	6"
Pent	84"	6"

Before any maintenance is performed on your system, be sure to plug the outlet pipe to prevent contamination of the adjacent systems.

To back-flush the R-Tank, water is pumped into the system through the Maintenance Ports as rapidly as possible. Water should be pumped into ALL Maintenance Ports. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out.

If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well.

For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

Once removed, sediment-laden water may be captured for disposal or pumped through a Dirtbag™ (if permitted by the locality).



2831 Cardwell Road
Richmond, Virginia, 23234
800.448.3636
FAX 804.743.7779
acfenvironmental.com

Step-By-Step Inspection & Maintenance Routine

1) Inspection

- a. Inspection Port
 - i. Remove Cap
 - ii. Use flashlight to detect sediment deposits
 - iii. If present, measure sediment depth with stadia rod
 - iv. Record results on Maintenance Log
 - v. Replace Cap
- b. Maintenance Port/s
 - i. Remove Cap
 - ii. Use flashlight to detect sediment deposits
 - iii. If present, measure sediment depth with stadia rod
 - iv. Record results on Maintenance Log
 - v. Replace Cap
 - vi. Repeat for ALL Maintenance Ports
- c. Adjacent Manholes
 - i. Remove Cover
 - ii. Use flashlight to detect sediment deposits
 - iii. If present, measure sediment depth with stadia rod, accounting for depth of sump (if present)
 - iv. Inspect pipes connecting to R-Tank
 - v. Record results on Maintenance Log
 - vi. Replace Cover
 - vii. Repeat for ALL Manholes that connect to the R-Tank

2) Maintenance

- a. Plug system outlet to prevent discharge of back-flush water
- b. Determine best location to pump out back-flush water
- c. Remove Cap from Maintenance Port
- d. Pump water as rapidly as possible (without over-topping port) into system until at least 1" of water covers system bottom
- e. Replace Cap
- f. Repeat at ALL Maintenance Ports
- g. Pump out back-flush water to complete back-flushing
- h. Vacuum all adjacent structures and any other structures or stormwater pre-treatment systems that require attention
- i. Sediment-laden water may be captured for disposal or pumped through a Dirtbag™.
- j. Replace any remaining Caps or Covers
- k. Record the back-flushing event in your Maintenance Log with any relevant specifics



**Company Responsible:
for Maintenance:**

Contact: _____

Phone Number: _____

For more information about our products, contact Inside Sales at 800.448.3636 or email at info@acfenv.com

StormFilter Inspection and Maintenance Procedures



Maintenance Guidelines

The primary purpose of the Stormwater Management StormFilter® is to filter and prevent pollutants from entering our waterways. Like any effective filtration system, periodically these pollutants must be removed to restore the StormFilter to its full efficiency and effectiveness.

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site. Maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms. It is a good practice to inspect the system after major storm events.

Maintenance Procedures

Although there are many effective maintenance options, we believe the following procedure to be efficient, using common equipment and existing maintenance protocols. The following two-step procedure is recommended::

1. Inspection

- Inspection of the vault interior to determine the need for maintenance.

2. Maintenance

- Cartridge replacement
- Sediment removal

Inspection and Maintenance Timing

At least one scheduled inspection should take place per year with maintenance following as warranted.

First, an inspection should be done before the winter season. During the inspection the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, a maintenance (replacement of the filter cartridges and removal of accumulated sediments) should be performed during periods of dry weather.

In addition to these two activities, it is important to check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation that may be caused by localized erosion in the drainage area. It may be necessary to adjust the inspection/maintenance schedule depending on the actual operating conditions encountered by the system. In general, inspection activities can be conducted at any time, and maintenance should occur, if warranted, during dryer months in late summer to early fall.

Maintenance Frequency

The primary factor for determining frequency of maintenance for the StormFilter is sediment loading.

A properly functioning system will remove solids from water by trapping particulates in the porous structure of the filter media inside the cartridges. The flow through the system will naturally decrease as more and more particulates are trapped. Eventually the flow through the cartridges will be low enough to require replacement. It may be possible to extend the usable span of the cartridges by removing sediment from upstream trapping devices on a routine as-needed basis, in order to prevent material from being re-suspended and discharged to the StormFilter treatment system.

The average maintenance lifecycle is approximately 1-5 years. Site conditions greatly influence maintenance requirements. StormFilter units located in areas with erosion or active construction may need to be inspected and maintained more often than those with fully stabilized surface conditions.

Regulatory requirements or a chemical spill can shift maintenance timing as well. The maintenance frequency may be adjusted as additional monitoring information becomes available during the inspection program. Areas that develop known problems should be inspected more frequently than areas that demonstrate no problems, particularly after major storms. Ultimately, inspection and maintenance activities should be scheduled based on the historic records and characteristics of an individual StormFilter system or site. It is recommended that the site owner develop a database to properly manage StormFilter inspection and maintenance programs..





Inspection Procedures

The primary goal of an inspection is to assess the condition of the cartridges relative to the level of visual sediment loading as it relates to decreased treatment capacity. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and Contech Engineered Solutions immediately.

To conduct an inspection:

Important: Inspection should be performed by a person who is familiar with the operation and configuration of the StormFilter treatment unit.

1. If applicable, set up safety equipment to protect and notify surrounding vehicle and pedestrian traffic.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the access portals to the vault and allow the system vent.
4. Without entering the vault, visually inspect the inside of the unit, and note accumulations of liquids and solids.
5. Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the flow of water per drainage pipe. Record all observations. Digital pictures are valuable for historical documentation.
6. Close and fasten the access portals.
7. Remove safety equipment.
8. If appropriate, make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
9. Discuss conditions that suggest maintenance and make decision as to whether or not maintenance is needed.

Maintenance Decision Tree

The need for maintenance is typically based on results of the inspection. The following Maintenance Decision Tree should be used as a general guide. (Other factors, such as Regulatory Requirements, may need to be considered)

1. Sediment loading on the vault floor.
 - a. If $>4"$ of accumulated sediment, maintenance is required.
2. Sediment loading on top of the cartridge.
 - a. If $>1/4"$ of accumulation, maintenance is required.
3. Submerged cartridges.
 - a. If $>4"$ of static water above cartridge bottom for more than 24 hours after end of rain event, maintenance is required. (Catch basins have standing water in the cartridge bay.)
4. Plugged media.
 - a. If pore space between media granules is absent, maintenance is required.
5. Bypass condition.
 - a. If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges), maintenance is required.
6. Hazardous material release.
 - a. If hazardous material release (automotive fluids or other) is reported, maintenance is required.
7. Pronounced scum line.
 - a. If pronounced scum line (say $\geq 1/4"$ thick) is present above top cap, maintenance is required.



Maintenance

Depending on the configuration of the particular system, maintenance personnel will be required to enter the vault to perform the maintenance.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows is occurring.

Replacement cartridges can be delivered to the site or customers facility. Information concerning how to obtain the replacement cartridges is available from Contech Engineered Solutions.

Warning: In the case of a spill, the maintenance personnel should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and Contech Engineered Solutions immediately.

To conduct cartridge replacement and sediment removal maintenance:

1. If applicable, set up safety equipment to protect maintenance personnel and pedestrians from site hazards.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors (access portals) to the vault and allow the system to vent.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:

Method 1:

- A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Disconnect each filter cartridge from the underdrain connector by rotating counterclockwise 1/4 of a turn. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact Contech Engineered Solutions for suggested attachment devices.

- B. Remove the used cartridges (up to 250 lbs. each) from the vault.



Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner.

- C. Set the used cartridge aside or load onto the hauling truck.
- D. Continue steps a through c until all cartridges have been removed.

Method 2:

- A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Disconnect each filter cartridge from the underdrain connector by rotating counterclockwise 1/4 of a turn. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.
- B. Unscrew the cartridge cap.
- C. Remove the cartridge hood and float.
- D. At location under structure access, tip the cartridge on its side.
- E. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.
- F. Set the empty, used cartridge aside or load onto the hauling truck.
- G. Continue steps a through e until all cartridges have been removed.

8. Remove accumulated sediment from the floor of the vault and from the forebay. This can most effectively be accomplished by use of a vacuum truck.
9. Once the sediments are removed, assess the condition of the vault and the condition of the connectors.
10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Once again, take care not to damage connections.
11. Close and fasten the door.
12. Remove safety equipment.
13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used **empty** cartridges to Contech Engineered Solutions.

Related Maintenance Activities - Performed on an as-needed basis

StormFilter units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.



Inspection Report

Date: _____ Personnel: _____

Location: _____ System Size: _____ Months in Service: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other: _____

Sediment Thickness in Forebay: _____ Date: _____

Sediment Depth on Vault Floor: _____

Sediment Depth on Cartridge Top(s): _____

Structural Damage: _____

Estimated Flow from Drainage Pipes (if available): _____

Cartridges Submerged: Yes ☐ No ☐ Depth of Standing Water: _____

StormFilter Maintenance Activities (check off if done and give description)

☐ Trash and Debris Removal: _____

☐ Minor Structural Repairs: _____

☐ Drainage Area Report _____

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

Items Needing Further Work: _____

Owners should contact the local public works department and inquire about how the department disposes of their street waste residuals.

Other Comments:

Review the condition reports from the previous inspection visits.

StormFilter Maintenance Report

Date: _____ Personnel: _____

Location: _____ System Size: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other: _____

List Safety Procedures and Equipment Used: _____

System Observations

Months in Service: _____

Oil in Forebay (if present): Yes ☐ No ☐

Sediment Depth in Forebay (if present): _____

Sediment Depth on Vault Floor: _____

Sediment Depth on Cartridge Top(s): _____

Structural Damage: _____

Drainage Area Report

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

StormFilter Cartridge Replacement Maintenance Activities

Remove Trash and Debris: Yes ☐ No ☐ Details: _____

Replace Cartridges: Yes ☐ No ☐ Details: _____

Sediment Removed: Yes ☐ No ☐ Details: _____

Quantity of Sediment Removed (estimate?): _____

Minor Structural Repairs: Yes ☐ No ☐ Details: _____

Residuals (debris, sediment) Disposal Methods: _____

Notes:



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Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater and earth stabilization products. For information on other Contech division offerings, visit www.ContechES.com or call 800.338.1122.

Support

- Drawings and specifications are available at www.conteches.com.
- Site-specific design support is available from our engineers.

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Stormwater BMP Maintenance Log

BMP Structure	Inspector (Name)	Work Performed	Date Performed	Comments
Pavement Sweeping				
Catch Basins				
R-Tank System				
StormFilter System				
Other				
Additional Comments:				

Redevelopment Treatment Calculations - Per Section 4.C.2.d of the MaineDEP Chapter 500 Rules

Area of Redevelopment (acres) = 7.35

a. Existing Pollutant Impact

Land Use	Pollutant Ranking	Land Area (Ac.)	Impact
High Use Roads/Parking Lot	5	0.00	0.00
Other Roads/Medium Use Parking Lot	4	0.00	0.00
Other Parking Lots/Flat Asphalt Roofs/Industrial Roofs	3	1.84	5.52
Other Roofs/Landscaped Area/Paved Walkway	2	5.51	11.02
Non-grass Landscaping/Stormwater	1	0.00	0.00
Forest/Meadow	0	0.00	0.00
			16.54

b. Proposed Pollutant Impact

Land Use	Pollutant Ranking	Land Area (Ac.)	Impact
High Use Roads/Parking Lot	5	0.00	0.00
Other Roads/Medium Use Parking Lot	4	2.58	10.31
Other Parking Lots/Flat Asphalt Roofs/Industrial Roofs	3	2.47	7.40
Other Roofs/Landscaped Area/Paved Walkway	2	1.84	3.68
Non-grass Landscaping/Stormwater	1	0.47	0.47
Forest/Meadow	0	0.00	0.00
			21.85

c. Existing Impact/Total Redevelopment Acres

2.251

d. Proposed Impact/Total Redevelopment Acres

2.973

e. Item D Minus Item C

0.72

Ranked Impact Change Due to Redevelopment	Percentage of Developed Area that Must be Treated
0.0 or less	0% (Stormwater projects)
	50% (Site projects)
≥ 0.0 to ≤ 1.0	60%
> 1.0 to ≤ 2.0	70%
> 2.0 to ≤ 3.0	80%
> 3.0	Same treatment level as for new development

Stormwater Treatment Summary	Treatment Percentage	Treated Area (SF)	WQV (CF)
Required	60%	192,116	16,010
Provided	61.0%	272,310	16,286

Treated Area Summary	System 1
Impervious Area Treated (SF)	217,875
Landscaped Area Treated (SF)	54,435

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??? ????n???rve
???rand?M????

Ma[?][?][?][?][?][?][?]

RE: **Maine Port Authority Cold Storage Facility (Contech Reference No. 641,157)**
Review of StormFilter Design

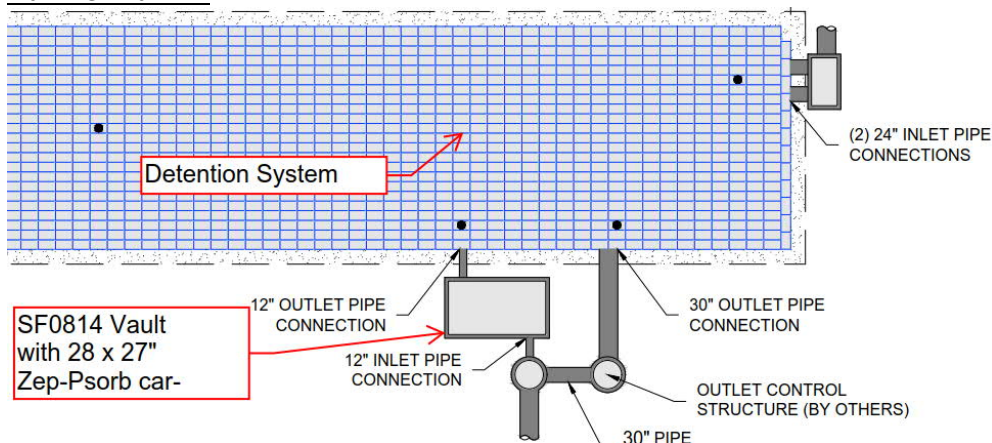
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[illegible][illegible]

The purpose of the present study was to investigate the effect of the use of the Internet on the learning of the English language. The study was conducted in a secondary school in the city of Istanbul. The sample consisted of 100 students. The data were collected through a questionnaire and analyzed using SPSS 22.0. The results showed that the use of the Internet had a significant positive effect on the learning of the English language. The study also found that the use of the Internet was more effective for the learning of the English language than the traditional method of learning. The study has some limitations and suggests some future research.

[illegible][illegible]

Can the Pauses?



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Determining Number of Cartridges for Systems Downstream of Detention

CONTECH Engineered Solutions Engineer:
Date Prepared:

DRA
5/13/2020

Site Information

Project Name
Project State
Project Location
Drainage Area, Ad
Impervious Area, Ai
Pervious Area, Ap
% Impervious
Runoff Coefficient, Rc

ME Port Authority Cold Storage Facility
Maine
Portland

8.60 ac
5.62 ac
2.99
65%
0.64

Upstream Detention System

Water Quality Volume
Water Quality Volume
24-hr release rate

24,724 cf Calculated
16,010 cf Provided by EOR
83.20 gpm

Filter System

Filtration brand
Cartridge height
Specific Flow Rate per MEDEP authorization

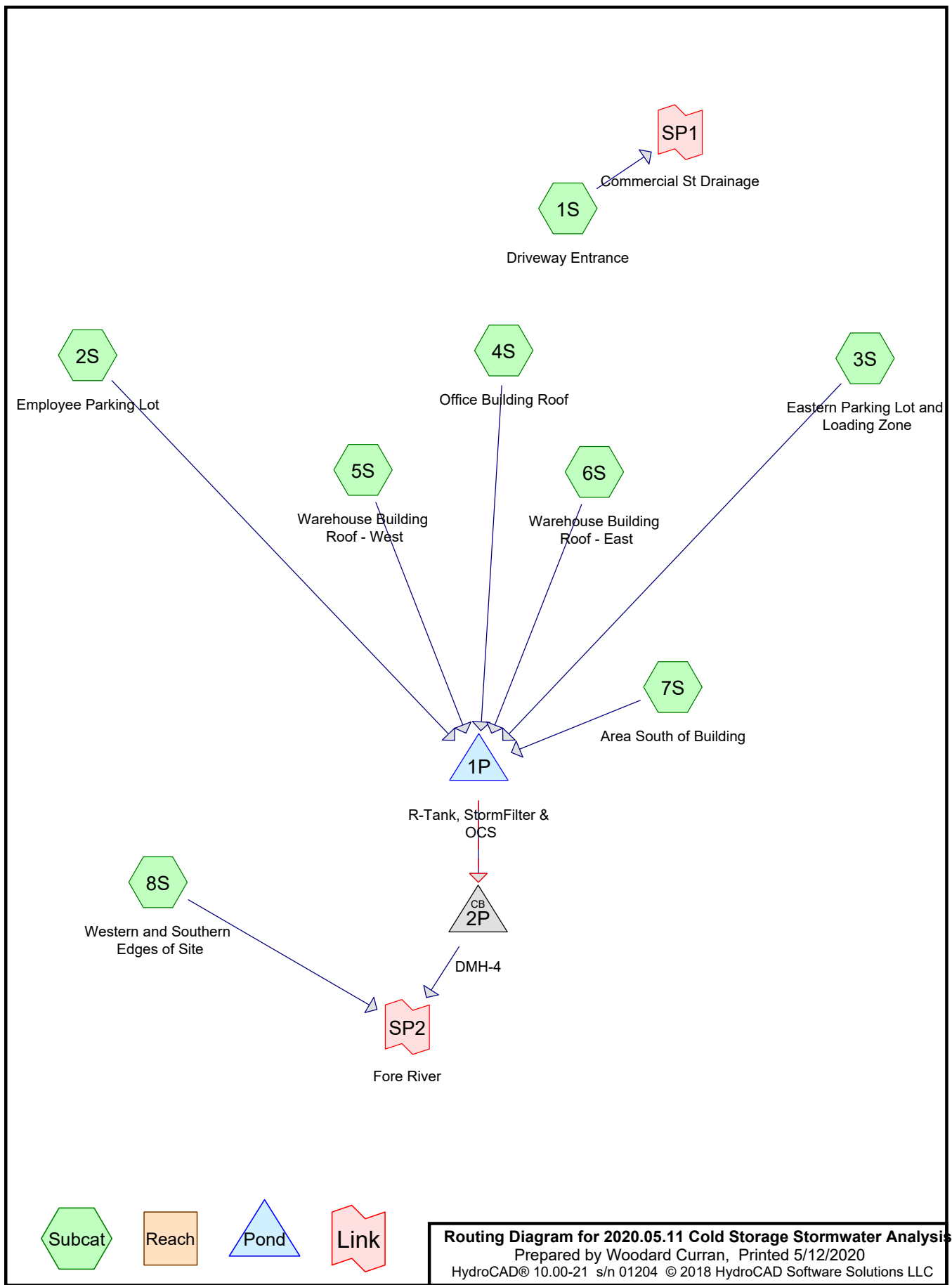
StormFilter
27 in
3.00 gpm/cart

Determine Critical Sizing Value

Number of Cartridges (24-Hr Release Rate / Cart Flow rate)

28 cartridges

SUMMARY	
Hydraulic	
Treatment Flow Rate (gpm)	84.00
Cartridge Flow Rate (gpm)	3.0
Number of Cartridges	28



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Prepared by Woodard Curran

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
130,040	80	>75% Grass cover, Good, HSG D (1S, 2S, 3S, 7S, 8S)
244,670	98	Impervious (1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S)
374,710	92	TOTAL AREA

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NRCC 24-hr D 2-Year Rainfall=3.10"

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Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Driveway Entrance Runoff Area=10,610 sf 96.56% Impervious Runoff Depth=2.76"
Tc=6.0 min CN=97 Runoff=0.646 cfs 2,438 cf

Subcatchment2S: Employee Parking Lot Runoff Area=29,580 sf 49.63% Impervious Runoff Depth=1.99"
Tc=6.0 min CN=89 Runoff=1.434 cfs 4,906 cf

Subcatchment3S: Eastern Parking Lot Runoff Area=107,665 sf 82.18% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=95 Runoff=6.288 cfs 22,853 cf

Subcatchment4S: Office Building Roof Runoff Area=17,085 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.056 cfs 4,083 cf

Subcatchment5S: Warehouse Building Runoff Area=32,430 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=2.004 cfs 7,750 cf

Subcatchment6S: Warehouse Building Runoff Area=57,870 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=3.575 cfs 13,830 cf

Subcatchment7S: Area South of Building Runoff Area=27,680 sf 26.50% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=85 Runoff=1.144 cfs 3,858 cf

Subcatchment8S: Western and Southern Runoff Area=91,790 sf 18.03% Impervious Runoff Depth=1.53"
Tc=0.0 min CN=83 Runoff=3.997 cfs 11,684 cf

Pond 1P: R-Tank, StormFilter & OCS Peak Elev=4.54' Storage=23,266 cf Inflow=15.497 cfs 57,281 cf
Primary=0.345 cfs 32,954 cf Secondary=9.920 cfs 23,320 cf Outflow=10.234 cfs 56,274 cf

Pond 2P: DMH-4 Peak Elev=1.81' Inflow=10.234 cfs 56,274 cf
36.0" Round Culvert n=0.013 L=61.0' S=0.0051 ' /' Outflow=10.234 cfs 56,274 cf

Link SP1: Commercial St Drainage Inflow=0.646 cfs 2,438 cf
Primary=0.646 cfs 2,438 cf

Link SP2: Fore River Inflow=11.403 cfs 67,958 cf
Primary=11.403 cfs 67,958 cf

Total Runoff Area = 374,710 sf Runoff Volume = 71,403 cf Average Runoff Depth = 2.29"
34.70% Pervious = 130,040 sf 65.30% Impervious = 244,670 sf

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NRCC 24-hr D 2-Year Rainfall=3.10"

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Summary for Subcatchment 1S: Driveway Entrance

Runoff = 0.646 cfs @ 12.13 hrs, Volume= 2,438 cf, Depth= 2.76"

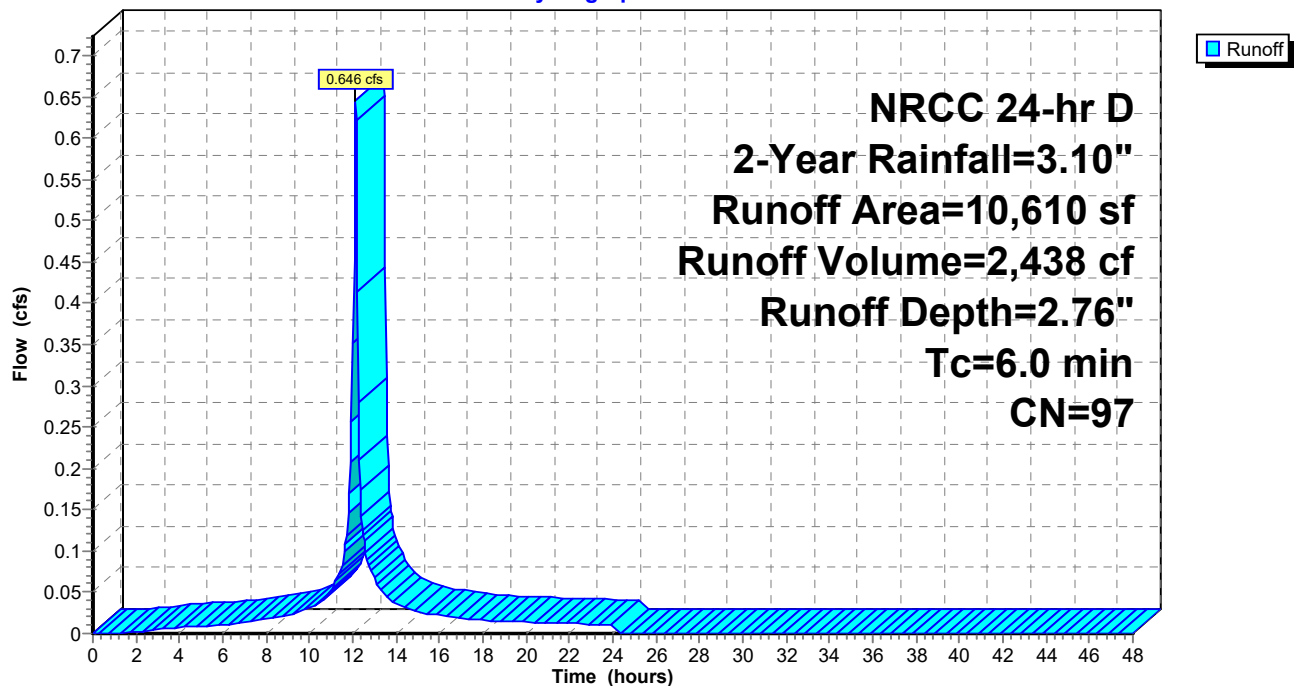
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	10,245	98	Impervious
	365	80	>75% Grass cover, Good, HSG D
	10,610	97	Weighted Average
	365		3.44% Pervious Area
	10,245		96.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Driveway Entrance

Hydrograph



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Summary for Subcatchment 2S: Employee Parking Lot

Runoff = 1.434 cfs @ 12.13 hrs, Volume= 4,906 cf, Depth= 1.99"

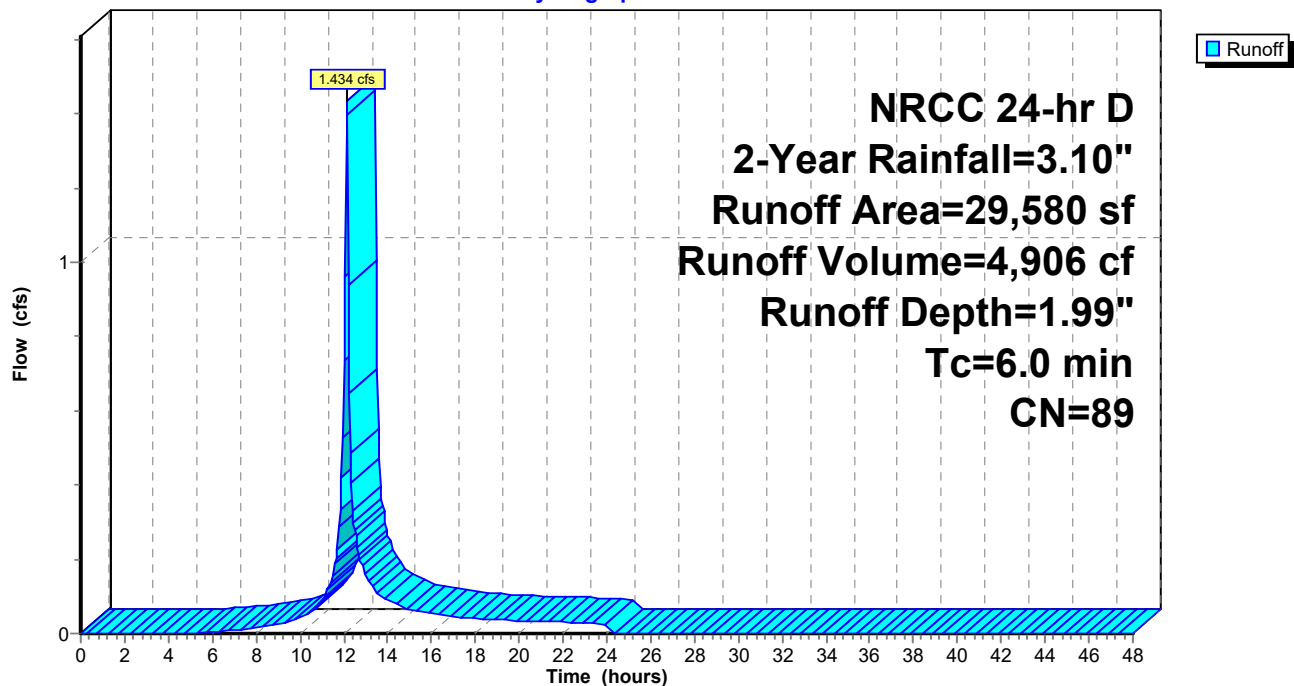
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	14,680	98	Impervious
	14,900	80	>75% Grass cover, Good, HSG D
	29,580	89	Weighted Average
	14,900		50.37% Pervious Area
	14,680		49.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: Employee Parking Lot

Hydrograph



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Summary for Subcatchment 3S: Eastern Parking Lot and Loading Zone

Runoff = 6.288 cfs @ 12.13 hrs, Volume= 22,853 cf, Depth= 2.55"

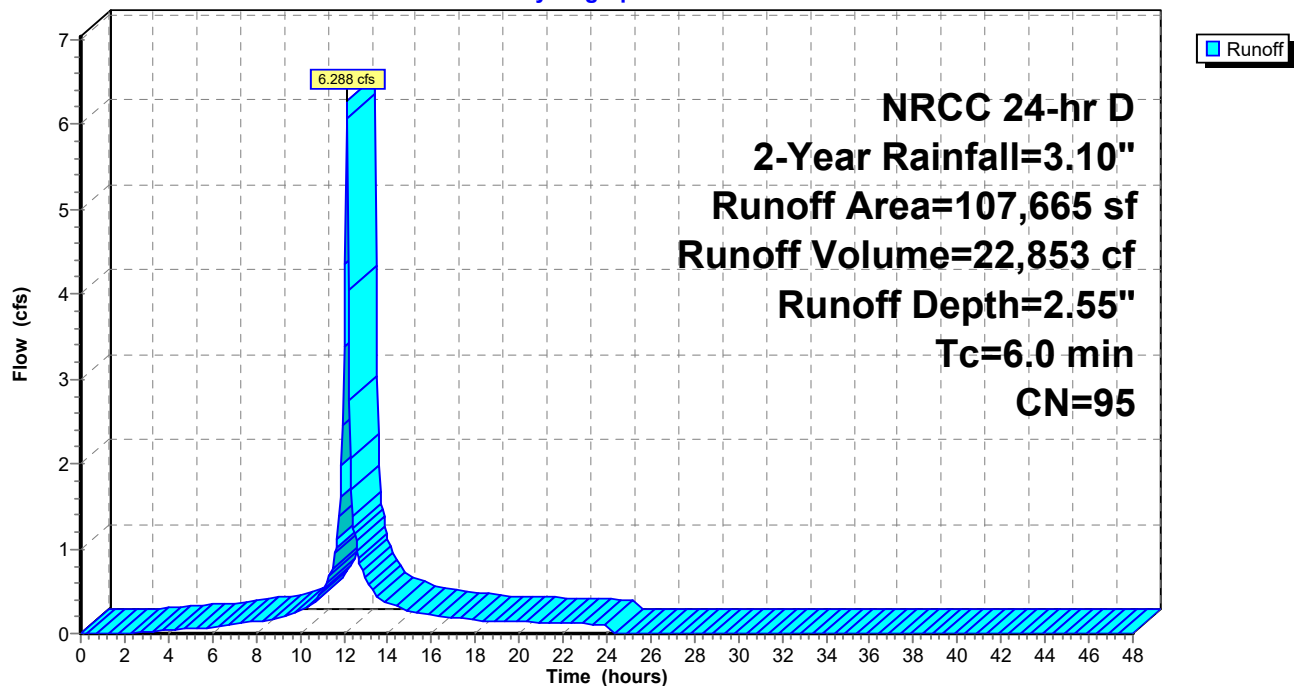
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	88,475	98	Impervious
	19,190	80	>75% Grass cover, Good, HSG D
	107,665	95	Weighted Average
	19,190		17.82% Pervious Area
	88,475		82.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 3S: Eastern Parking Lot and Loading Zone

Hydrograph



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Summary for Subcatchment 4S: Office Building Roof

Runoff = 1.056 cfs @ 12.13 hrs, Volume= 4,083 cf, Depth= 2.87"

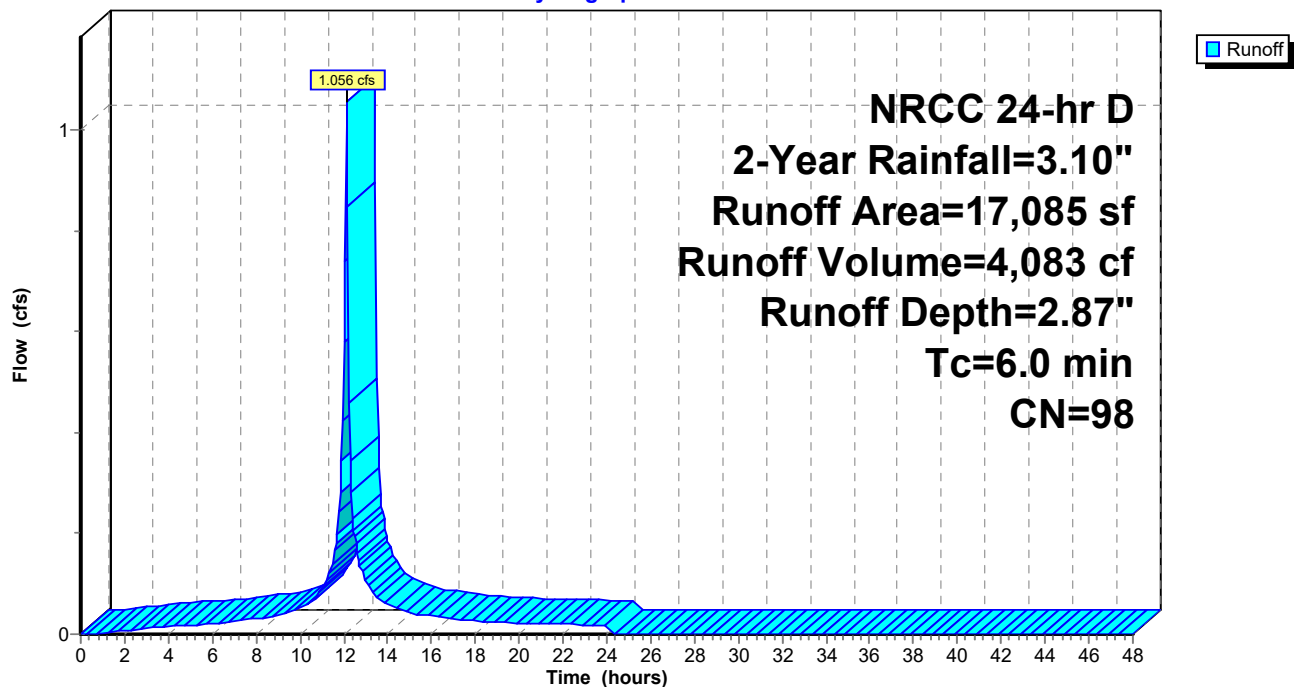
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	17,085	98	Impervious
	17,085		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 4S: Office Building Roof

Hydrograph



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NRCC 24-hr D 2-Year Rainfall=3.10"

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Summary for Subcatchment 5S: Warehouse Building Roof - West

Runoff = 2.004 cfs @ 12.13 hrs, Volume= 7,750 cf, Depth= 2.87"

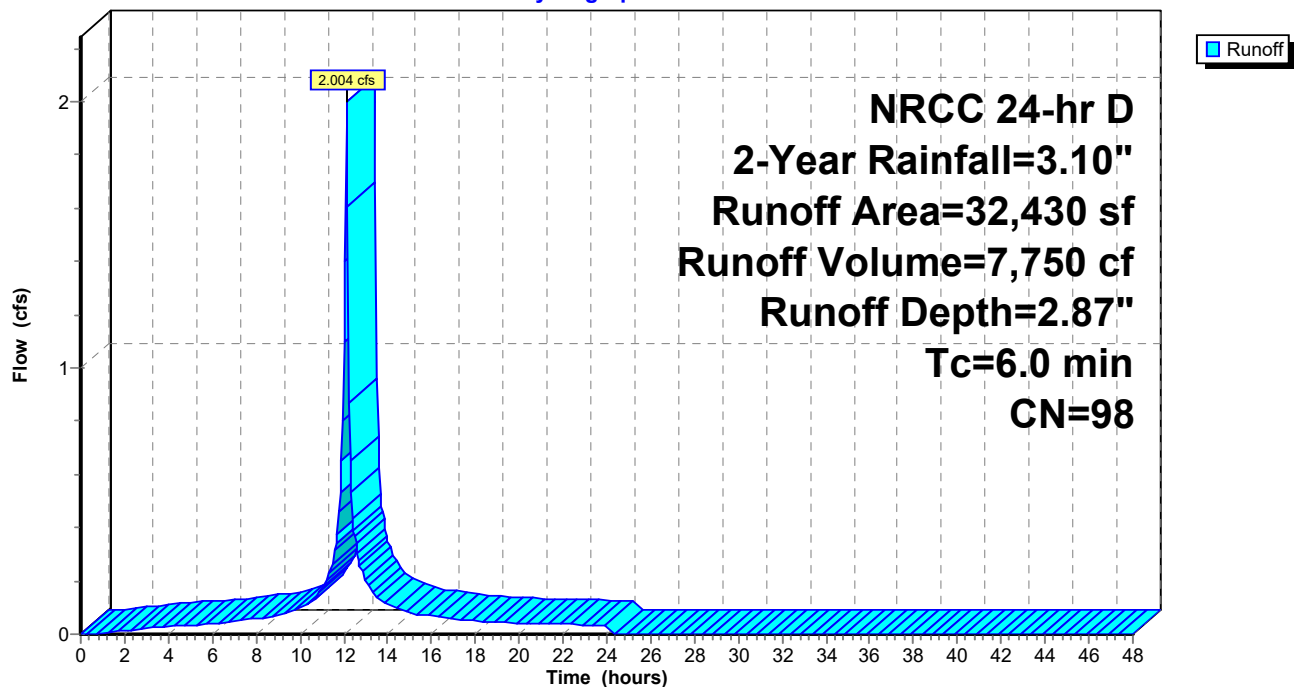
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	32,430	98	Impervious
	32,430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 5S: Warehouse Building Roof - West

Hydrograph



2020.05.11 Cold Storage Stormwater Analysis

NRCC 24-hr D 2-Year Rainfall=3.10"

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Summary for Subcatchment 6S: Warehouse Building Roof - East

Runoff = 3.575 cfs @ 12.13 hrs, Volume= 13,830 cf, Depth= 2.87"

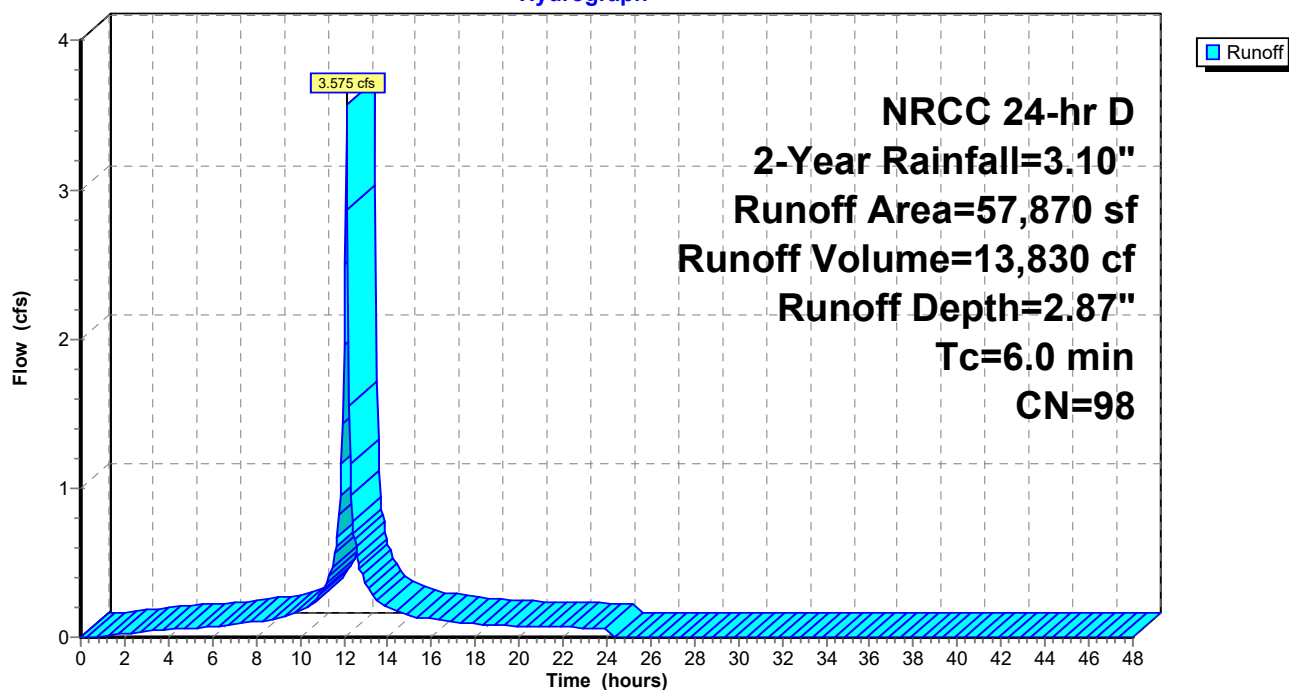
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	57,870	98	Impervious
	57,870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 6S: Warehouse Building Roof - East

Hydrograph



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NRCC 24-hr D 2-Year Rainfall=3.10"

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Summary for Subcatchment 7S: Area South of Building

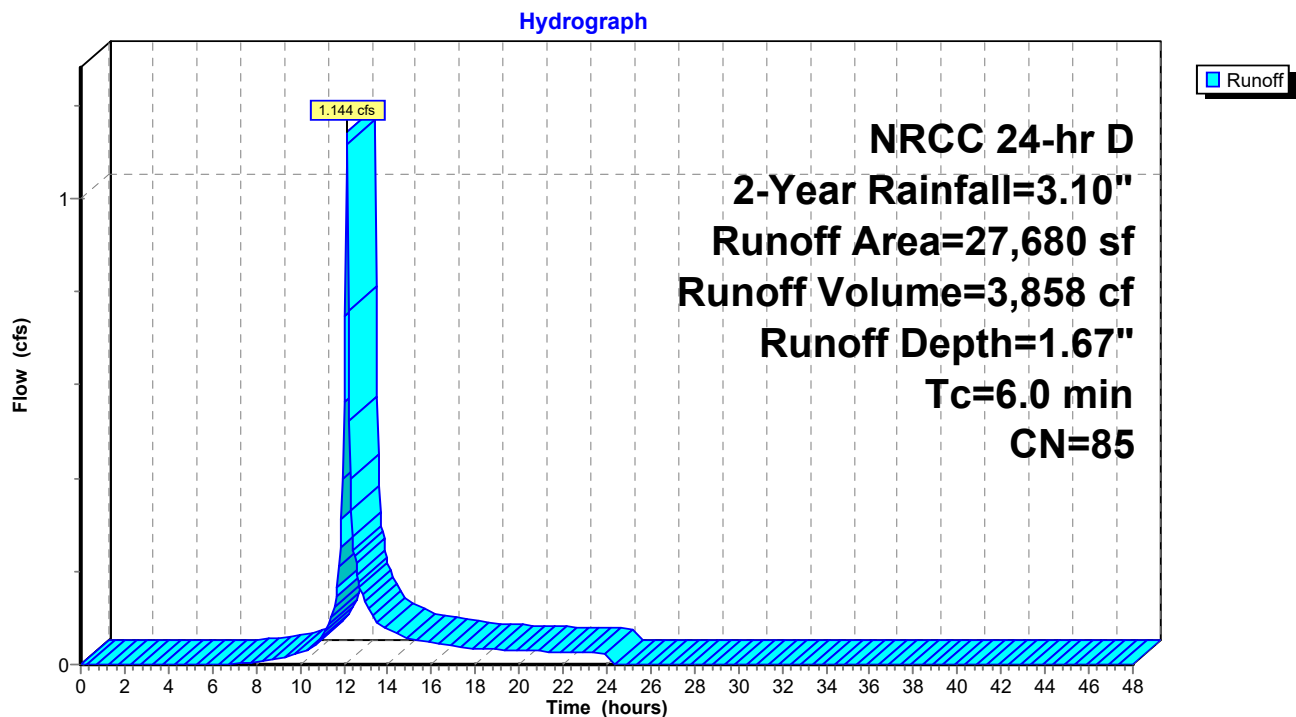
Runoff = 1.144 cfs @ 12.13 hrs, Volume= 3,858 cf, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	7,335	98	Impervious
	20,345	80	>75% Grass cover, Good, HSG D
	27,680	85	Weighted Average
	20,345		73.50% Pervious Area
	7,335		26.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 7S: Area South of Building



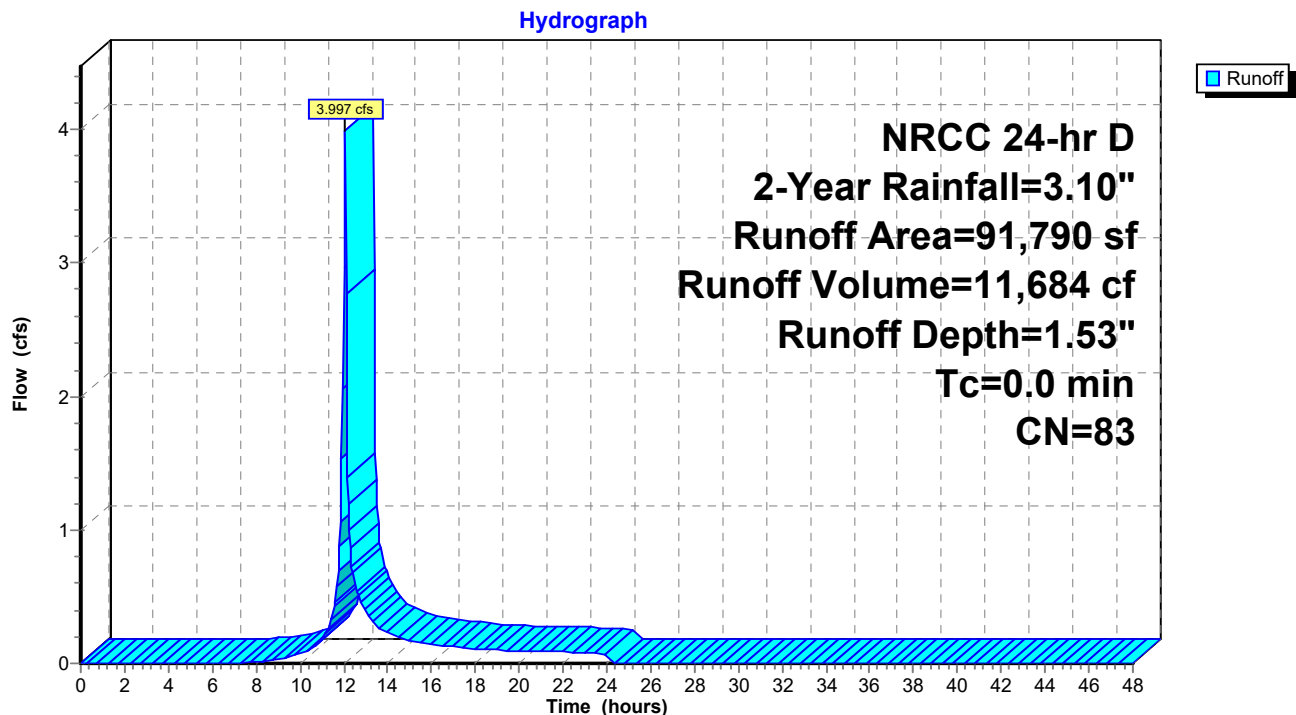
Summary for Subcatchment 8S: Western and Southern Edges of Site

Runoff = 3.997 cfs @ 12.05 hrs, Volume= 11,684 cf, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	16,550	98	Impervious
	75,240	80	>75% Grass cover, Good, HSG D
	91,790	83	Weighted Average
	75,240		81.97% Pervious Area
	16,550		18.03% Impervious Area

Subcatchment 8S: Western and Southern Edges of Site



2020.05.11 Cold Storage Stormwater Analysis

NRCC 24-hr D 2-Year Rainfall=3.10"

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Summary for Pond 1P: R-Tank, StormFilter & OCS

Inflow Area = 272,310 sf, 80.01% Impervious, Inflow Depth = 2.52" for 2-Year event
 Inflow = 15.497 cfs @ 12.13 hrs, Volume= 57,281 cf
 Outflow = 10.234 cfs @ 12.21 hrs, Volume= 56,274 cf, Atten= 34%, Lag= 4.9 min
 Primary = 0.345 cfs @ 12.07 hrs, Volume= 32,954 cf
 Secondary = 9.920 cfs @ 12.21 hrs, Volume= 23,320 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 4.54' @ 12.21 hrs Surf.Area= 7,194 sf Storage= 23,266 cf

Flood Elev= 9.42' Surf.Area= 7,194 sf Storage= 30,079 cf

Plug-Flow detention time= 431.5 min calculated for 56,274 cf (98% of inflow)

Center-of-Mass det. time= 420.2 min (1,205.8 - 785.6)

Volume	Invert	Avail.Storage	Storage Description
#1	0.71'	5,213 cf	Stone Envelope (Prismatic) Listed below (Recalc) 39,207 cf Overall - 26,174 cf Embedded = 13,033 cf x 40.0% Voids
#2	0.96'	24,866 cf	R-Tank Triple Modules (Prismatic) Listed below (Recalc) Inside #1 26,174 cf Overall x 95.0% Voids
		30,079 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.71	7,194	0	0
6.16	7,194	39,207	39,207

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.96	6,232	0	0
5.16	6,232	26,174	26,174

Device	Routing	Invert	Outlet Devices
#1	Primary	0.46'	12.0" Round Culvert to DMH4 L= 4.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.46' / 0.44' S= 0.0050 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	0.46'	SF - Tube/Siphon/Float Valve X 28.00 Starts@3.21' Breaks@1.13' 0.504" Diameter, C= 0.600, 0.263" Trickle Diameter
#3	Secondary	0.96'	30.0" Round Bypass Culvert L= 6.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.96' / 0.75' S= 0.0318 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#4	Device 3	3.71'	4.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

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NRCC 24-hr D 2-Year Rainfall=3.10"

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Primary OutFlow Max=0.325 cfs @ 12.07 hrs HW=4.06' TW=1.05' (Dynamic Tailwater)

↑ **1=Culvert to DMH4** (Passes 0.325 cfs of 5.188 cfs potential flow)

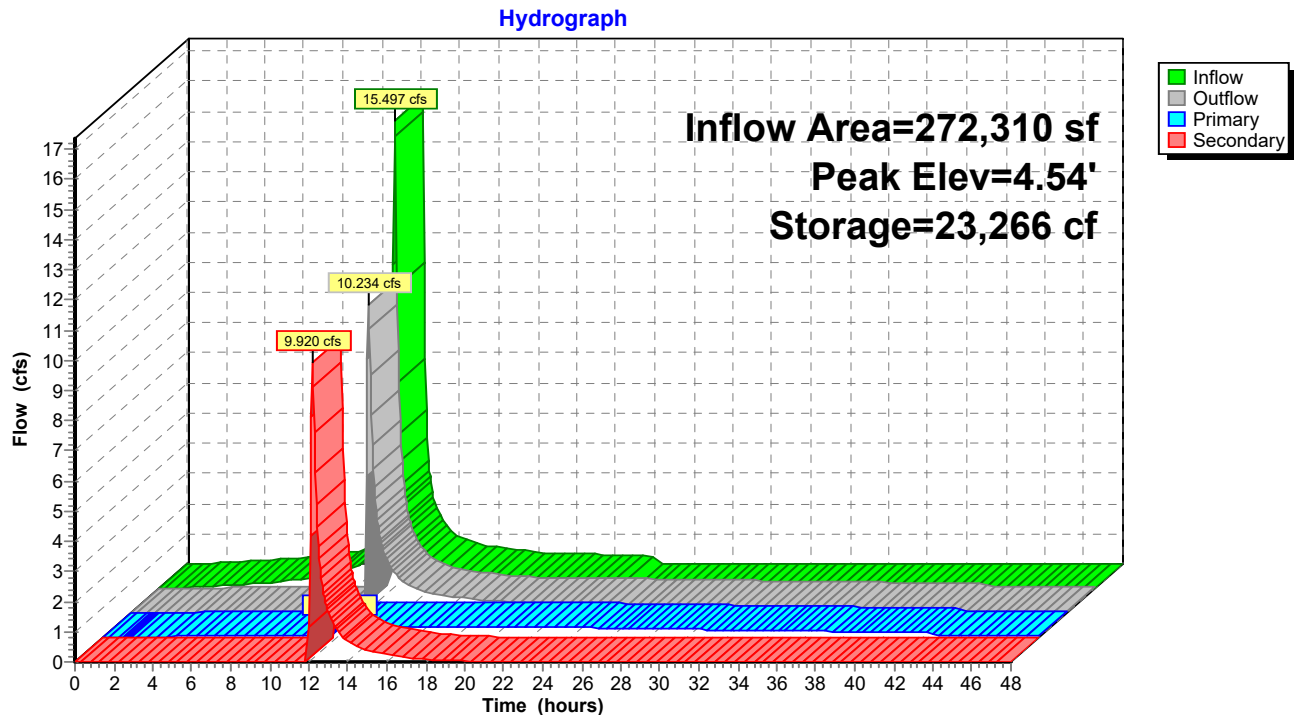
↑ **2=SF - Tube/Siphon/Float Valve** (Orifice Controls 0.325 cfs @ 8.37 fps)

Secondary OutFlow Max=9.728 cfs @ 12.21 hrs HW=4.53' TW=1.80' (Dynamic Tailwater)

↑ **3=Bypass Culvert** (Passes 9.728 cfs of 28.395 cfs potential flow)

↑ **4=Broad-Crested Rectangular Weir** (Weir Controls 9.728 cfs @ 2.98 fps)

Pond 1P: R-Tank, StormFilter & OCS



Summary for Pond 2P: DMH-4

Inflow Area = 272,310 sf, 80.01% Impervious, Inflow Depth > 2.48" for 2-Year event
 Inflow = 10.234 cfs @ 12.21 hrs, Volume= 56,274 cf
 Outflow = 10.234 cfs @ 12.21 hrs, Volume= 56,274 cf, Atten= 0%, Lag= 0.0 min
 Primary = 10.234 cfs @ 12.21 hrs, Volume= 56,274 cf

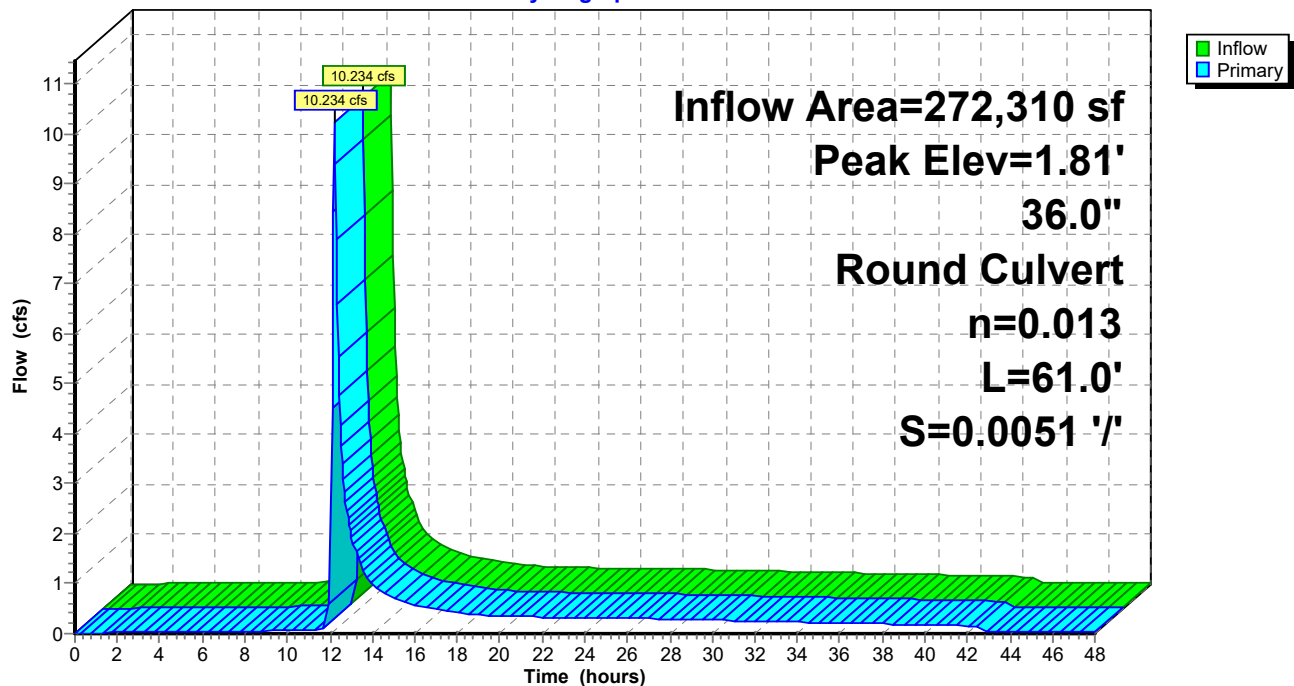
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 1.81' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.31'	36.0" Round Culvert L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.31' / 0.00' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=10.037 cfs @ 12.21 hrs HW=1.80' TW=0.00' (Dynamic Tailwater)
 1=Culvert (Barrel Controls 10.037 cfs @ 4.20 fps)

Pond 2P: DMH-4

Hydrograph



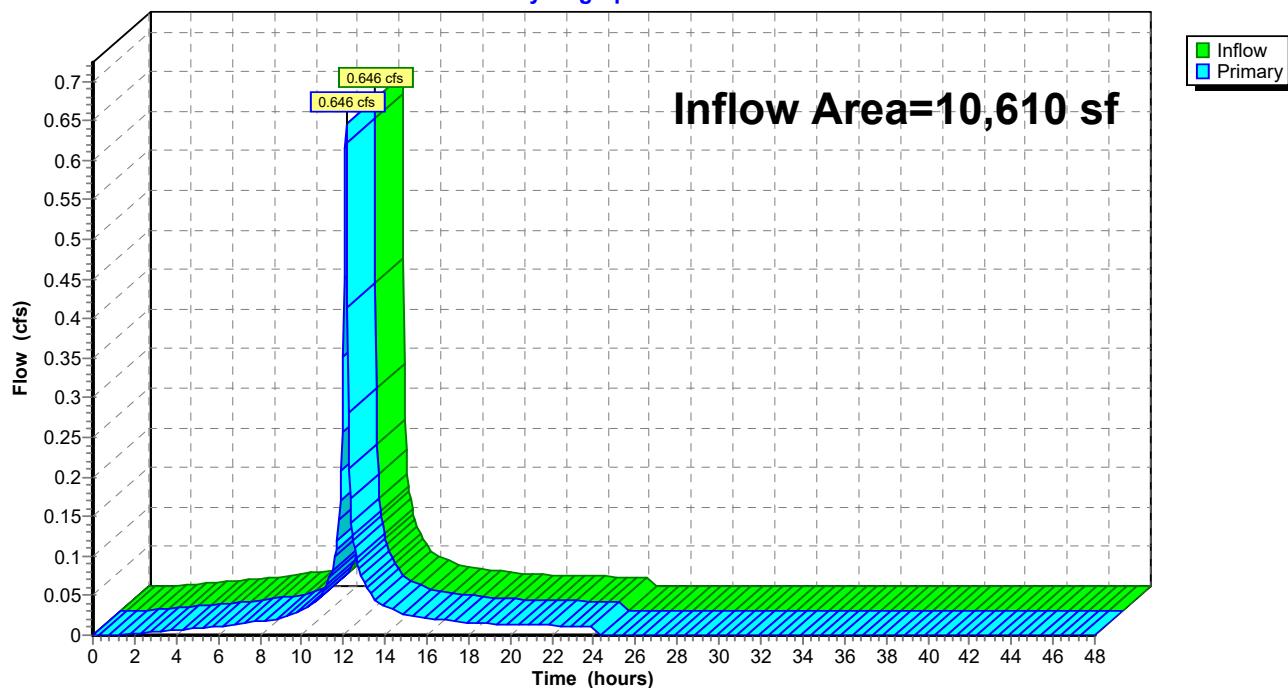
Summary for Link SP1: Commercial St Drainage

Inflow Area = 10,610 sf, 96.56% Impervious, Inflow Depth = 2.76" for 2-Year event
 Inflow = 0.646 cfs @ 12.13 hrs, Volume= 2,438 cf
 Primary = 0.646 cfs @ 12.13 hrs, Volume= 2,438 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link SP1: Commercial St Drainage

Hydrograph



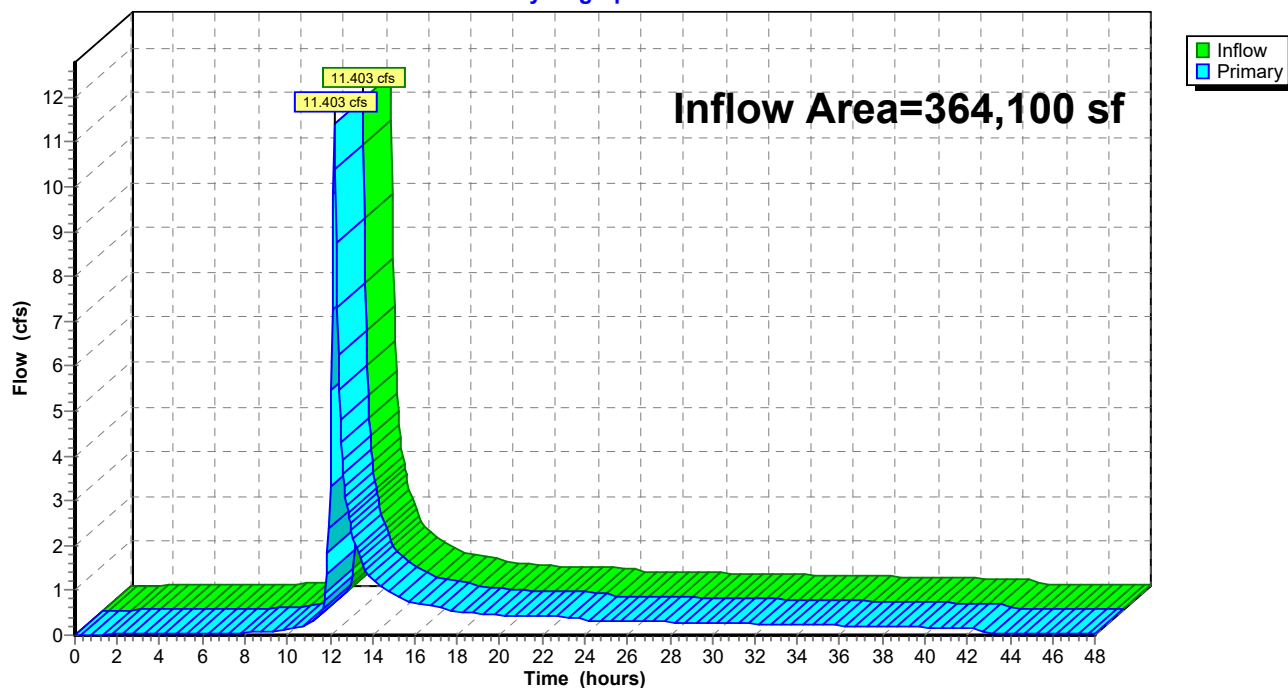
Summary for Link SP2: Fore River

Inflow Area = 364,100 sf, 64.38% Impervious, Inflow Depth > 2.24" for 2-Year event
 Inflow = 11.403 cfs @ 12.21 hrs, Volume= 67,958 cf
 Primary = 11.403 cfs @ 12.21 hrs, Volume= 67,958 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link SP2: Fore River

Hydrograph



2020.05.11 Cold Storage Stormwater Analysis

Type III 24-hr 10-Year Rainfall=4.60"

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Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Driveway Entrance Runoff Area=10,610 sf 96.56% Impervious Runoff Depth=4.25"
Tc=6.0 min CN=97 Runoff=1.061 cfs 3,756 cf

Subcatchment2S: Employee Parking Lot Runoff Area=29,580 sf 49.63% Impervious Runoff Depth=3.39"
Tc=6.0 min CN=89 Runoff=2.576 cfs 8,357 cf

Subcatchment3S: Eastern Parking Lot Runoff Area=107,665 sf 82.18% Impervious Runoff Depth=4.02"
Tc=6.0 min CN=95 Runoff=10.513 cfs 36,100 cf

Subcatchment4S: Office Building Roof Runoff Area=17,085 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.722 cfs 6,213 cf

Subcatchment5S: Warehouse Building Runoff Area=32,430 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=3.268 cfs 11,793 cf

Subcatchment6S: Warehouse Building Runoff Area=57,870 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=5.832 cfs 21,045 cf

Subcatchment7S: Area South of Building Runoff Area=27,680 sf 26.50% Impervious Runoff Depth=3.00"
Tc=6.0 min CN=85 Runoff=2.173 cfs 6,921 cf

Subcatchment8S: Western and Southern Runoff Area=91,790 sf 18.03% Impervious Runoff Depth=2.81"
Tc=0.0 min CN=83 Runoff=7.968 cfs 21,529 cf

Pond 1P: R-Tank, StormFilter & OCS Peak Elev=5.08' Storage=26,668 cf Inflow=26.082 cfs 90,429 cf
Primary=0.337 cfs 33,634 cf Secondary=21.189 cfs 55,790 cf Outflow=21.487 cfs 89,424 cf

Pond 2P: DMH-4 Peak Elev=2.65' Inflow=21.487 cfs 89,424 cf
36.0" Round Culvert n=0.013 L=61.0' S=0.0051 ' /' Outflow=21.487 cfs 89,424 cf

Link SP1: Commercial St Drainage Inflow=1.061 cfs 3,756 cf
Primary=1.061 cfs 3,756 cf

Link SP2: Fore River Inflow=24.817 cfs 110,953 cf
Primary=24.817 cfs 110,953 cf

Total Runoff Area = 374,710 sf Runoff Volume = 115,715 cf Average Runoff Depth = 3.71"
34.70% Pervious = 130,040 sf 65.30% Impervious = 244,670 sf

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Type III 24-hr 10-Year Rainfall=4.60"

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Summary for Subcatchment 1S: Driveway Entrance

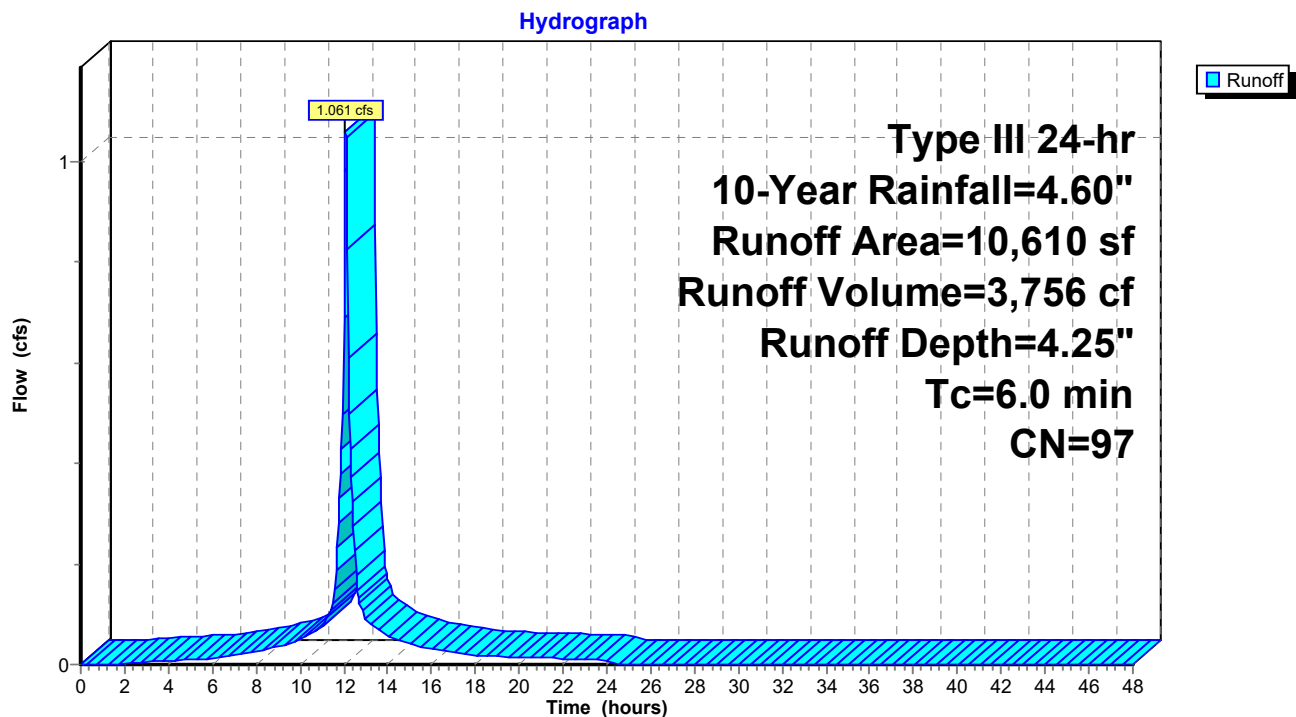
Runoff = 1.061 cfs @ 12.09 hrs, Volume= 3,756 cf, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	10,245	98	Impervious
	365	80	>75% Grass cover, Good, HSG D
	10,610	97	Weighted Average
	365		3.44% Pervious Area
	10,245		96.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Driveway Entrance



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Type III 24-hr 10-Year Rainfall=4.60"

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Summary for Subcatchment 2S: Employee Parking Lot

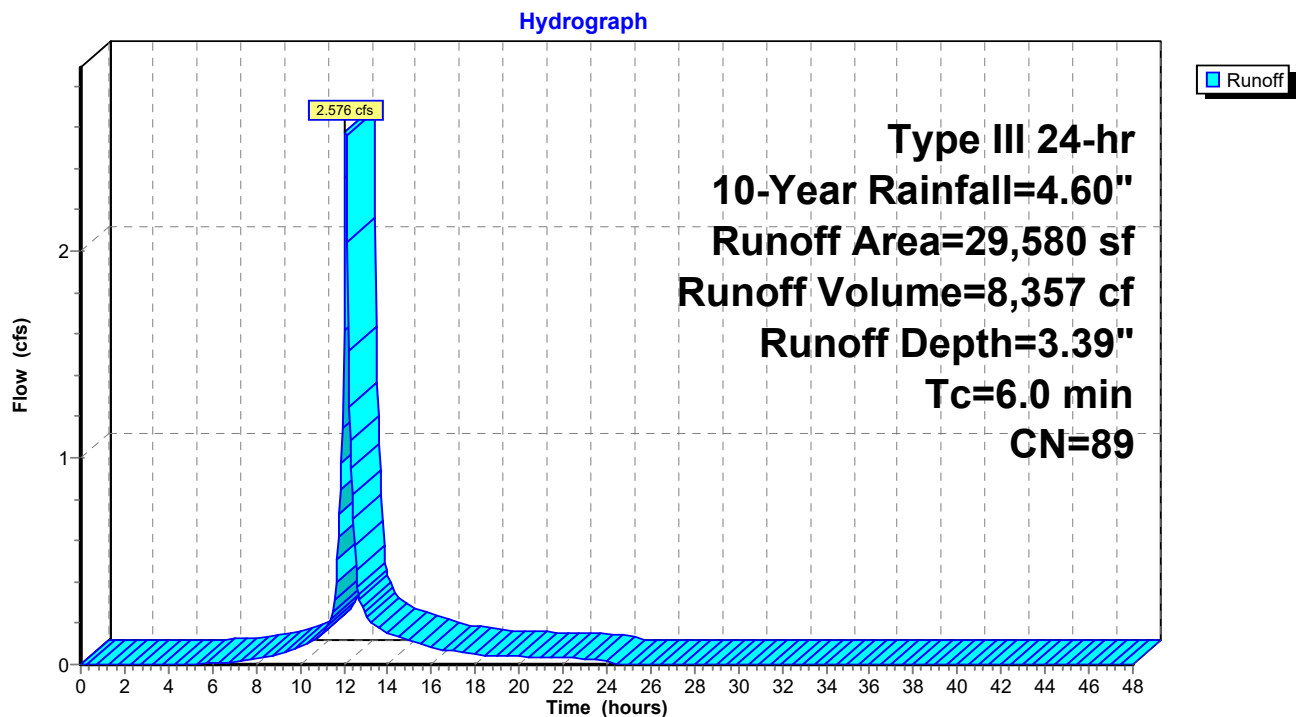
Runoff = 2.576 cfs @ 12.09 hrs, Volume= 8,357 cf, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	14,680	98	Impervious
	14,900	80	>75% Grass cover, Good, HSG D
	29,580	89	Weighted Average
	14,900		50.37% Pervious Area
	14,680		49.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: Employee Parking Lot



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Type III 24-hr 10-Year Rainfall=4.60"

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Summary for Subcatchment 3S: Eastern Parking Lot and Loading Zone

Runoff = 10.513 cfs @ 12.09 hrs, Volume= 36,100 cf, Depth= 4.02"

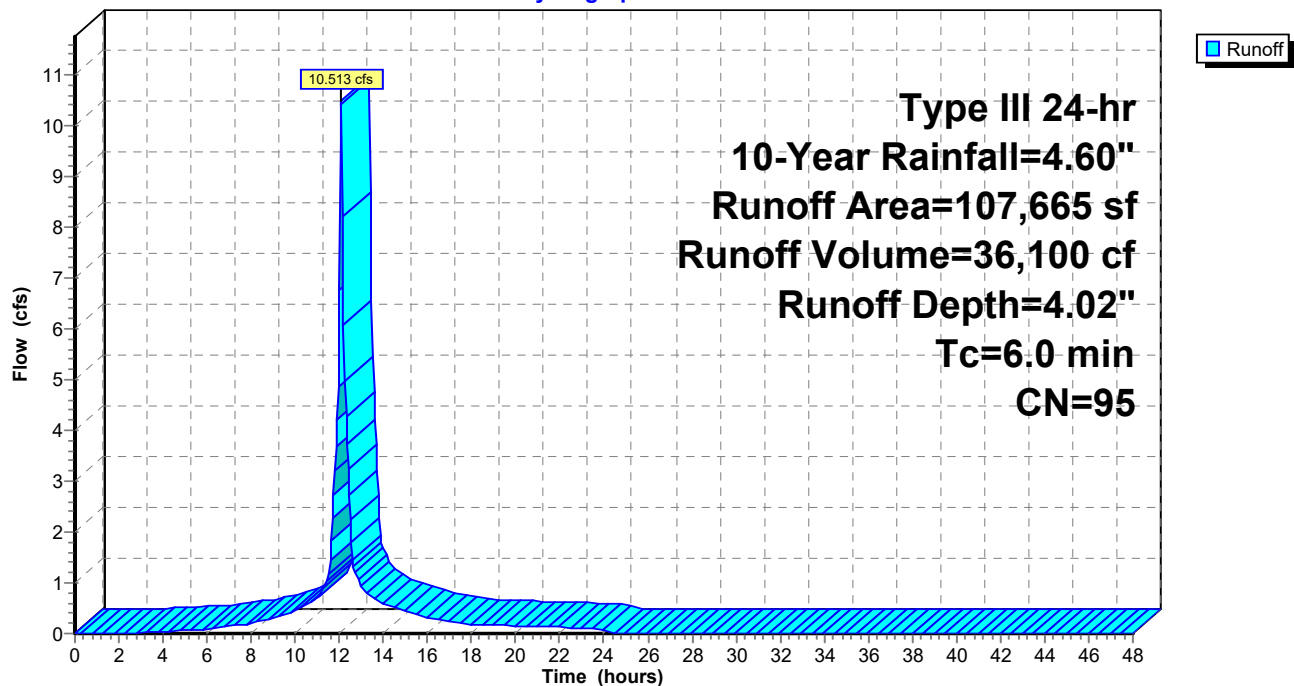
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	88,475	98	Impervious
	19,190	80	>75% Grass cover, Good, HSG D
	107,665	95	Weighted Average
	19,190		17.82% Pervious Area
	88,475		82.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 3S: Eastern Parking Lot and Loading Zone

Hydrograph



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Type III 24-hr 10-Year Rainfall=4.60"

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Summary for Subcatchment 4S: Office Building Roof

Runoff = 1.722 cfs @ 12.09 hrs, Volume= 6,213 cf, Depth= 4.36"

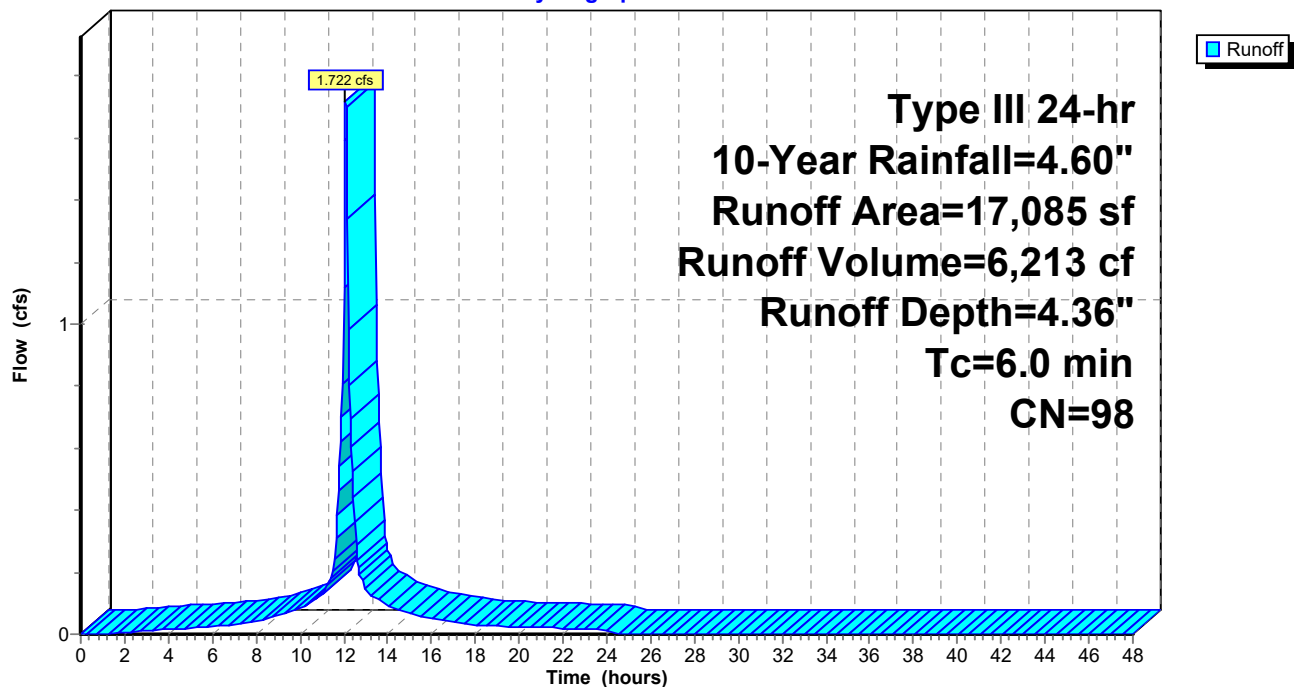
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	17,085	98	Impervious
	17,085		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 4S: Office Building Roof

Hydrograph



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Type III 24-hr 10-Year Rainfall=4.60"

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Summary for Subcatchment 5S: Warehouse Building Roof - West

Runoff = 3.268 cfs @ 12.09 hrs, Volume= 11,793 cf, Depth= 4.36"

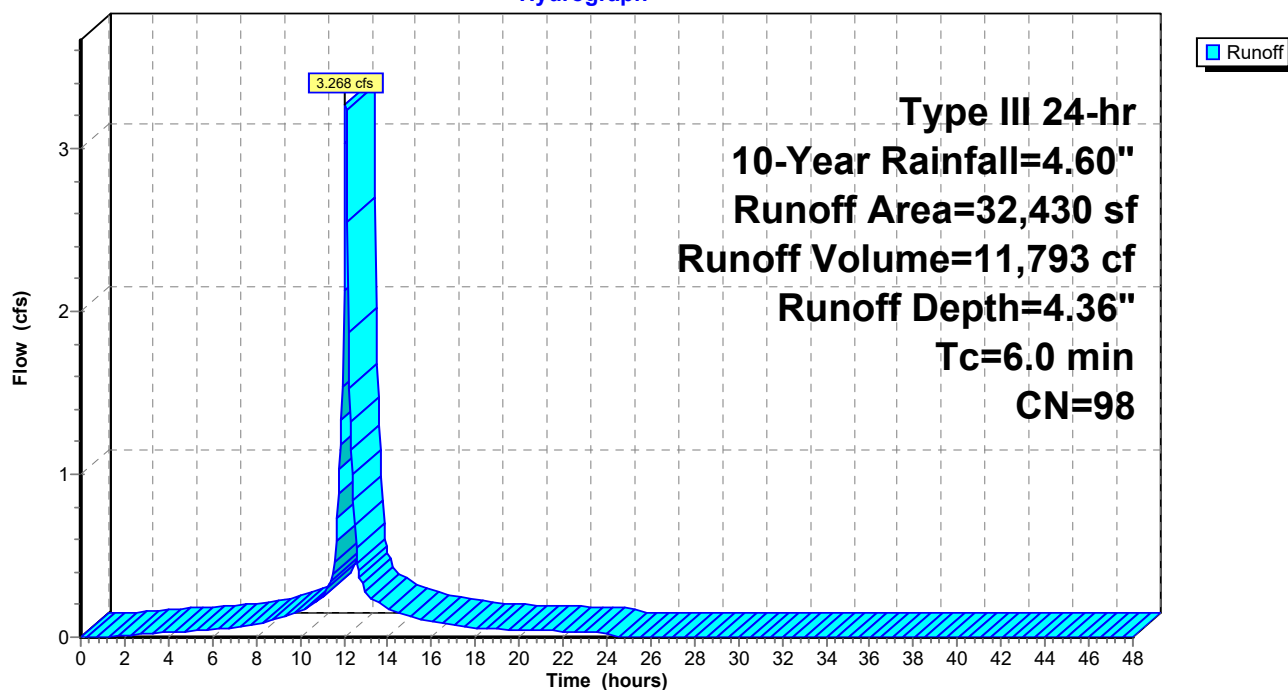
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	32,430	98	Impervious
	32,430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 5S: Warehouse Building Roof - West

Hydrograph



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Type III 24-hr 10-Year Rainfall=4.60"

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Summary for Subcatchment 6S: Warehouse Building Roof - East

Runoff = 5.832 cfs @ 12.09 hrs, Volume= 21,045 cf, Depth= 4.36"

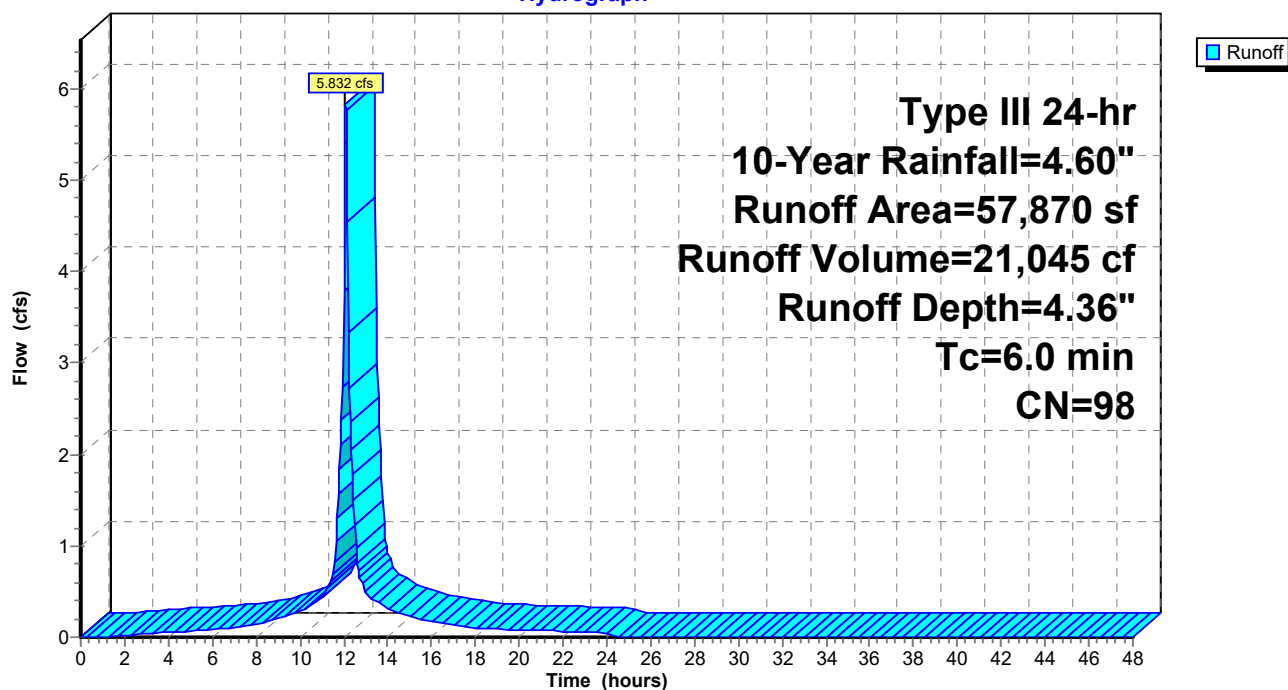
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	57,870	98	Impervious
	57,870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 6S: Warehouse Building Roof - East

Hydrograph



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Type III 24-hr 10-Year Rainfall=4.60"

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Summary for Subcatchment 7S: Area South of Building

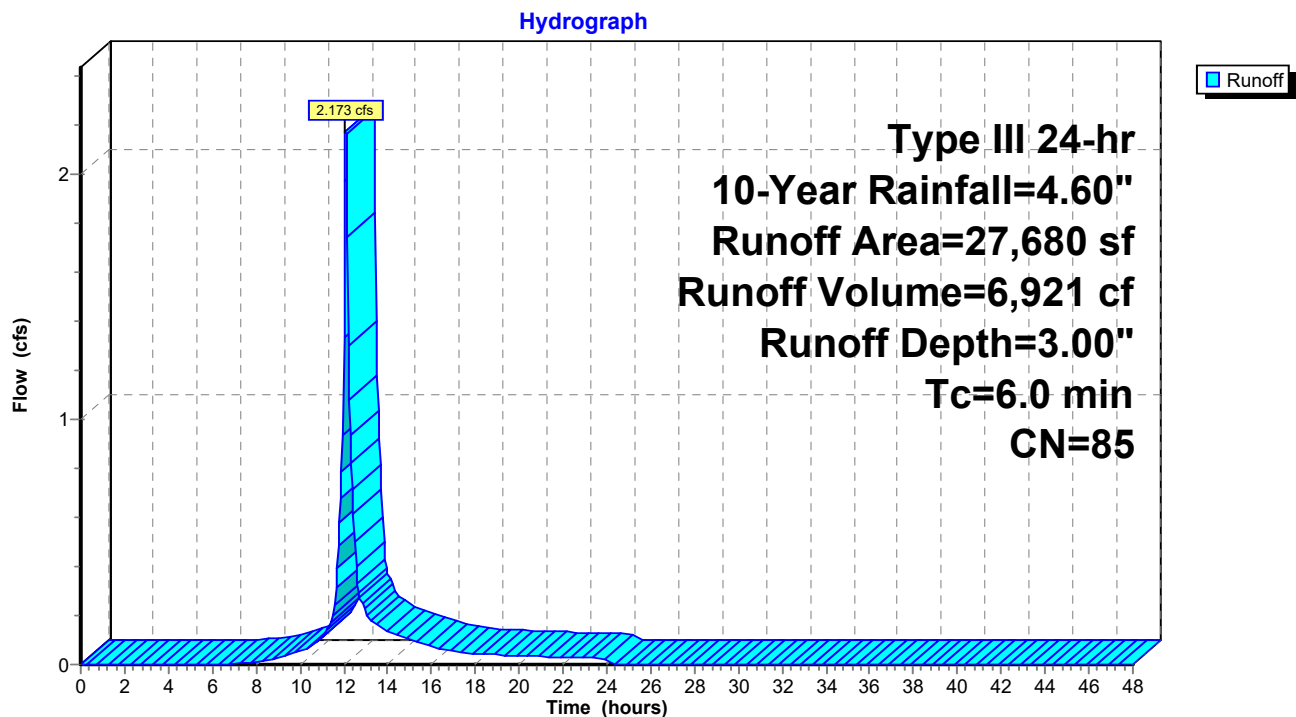
Runoff = 2.173 cfs @ 12.09 hrs, Volume= 6,921 cf, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	7,335	98	Impervious
	20,345	80	>75% Grass cover, Good, HSG D
	27,680	85	Weighted Average
	20,345		73.50% Pervious Area
	7,335		26.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 7S: Area South of Building



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Type III 24-hr 10-Year Rainfall=4.60"

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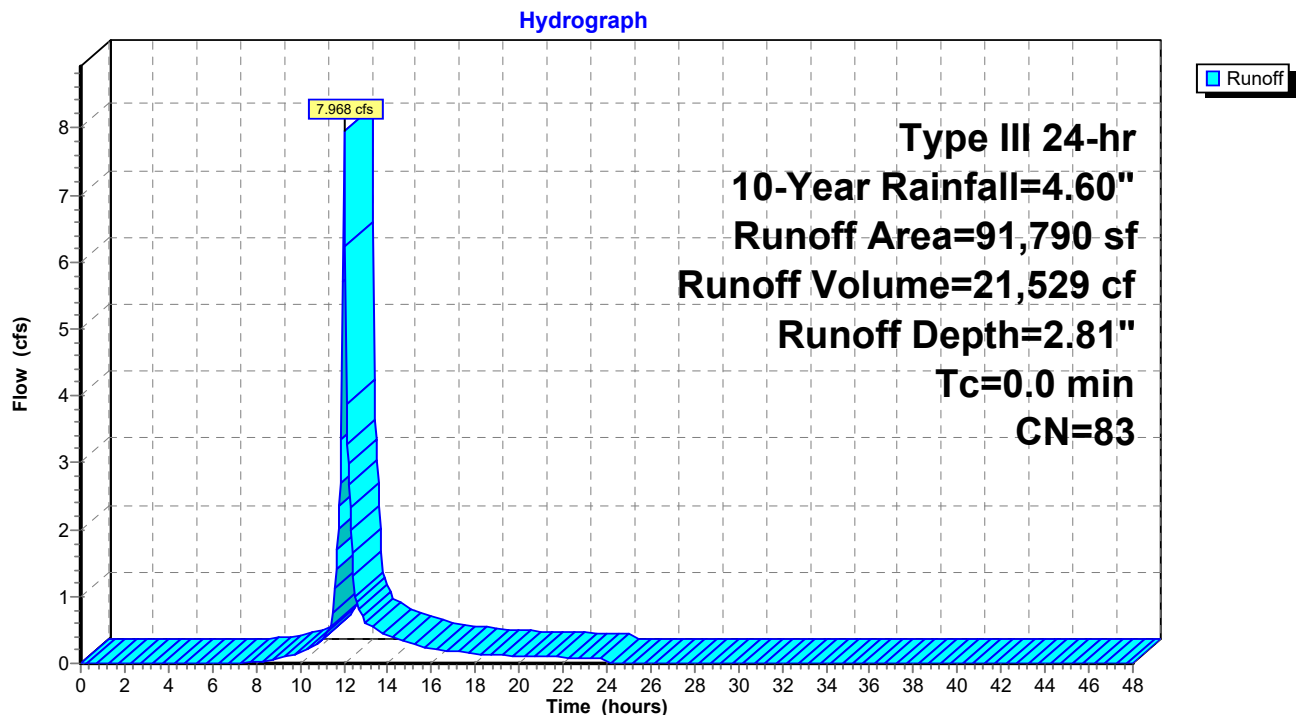
Summary for Subcatchment 8S: Western and Southern Edges of Site

Runoff = 7.968 cfs @ 12.00 hrs, Volume= 21,529 cf, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	16,550	98	Impervious
	75,240	80	>75% Grass cover, Good, HSG D
	91,790	83	Weighted Average
	75,240		81.97% Pervious Area
	16,550		18.03% Impervious Area

Subcatchment 8S: Western and Southern Edges of Site



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Type III 24-hr 10-Year Rainfall=4.60"

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Summary for Pond 1P: R-Tank, StormFilter & OCS

Inflow Area = 272,310 sf, 80.01% Impervious, Inflow Depth = 3.98" for 10-Year event
 Inflow = 26.082 cfs @ 12.09 hrs, Volume= 90,429 cf
 Outflow = 21.487 cfs @ 12.15 hrs, Volume= 89,424 cf, Atten= 18%, Lag= 3.7 min
 Primary = 0.337 cfs @ 11.65 hrs, Volume= 33,634 cf
 Secondary = 21.189 cfs @ 12.15 hrs, Volume= 55,790 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 5.08' @ 12.15 hrs Surf.Area= 7,194 sf Storage= 26,668 cf

Flood Elev= 9.42' Surf.Area= 7,194 sf Storage= 30,079 cf

Plug-Flow detention time= 283.3 min calculated for 89,424 cf (99% of inflow)

Center-of-Mass det. time= 276.0 min (1,043.0 - 767.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.71'	5,213 cf	Stone Envelope (Prismatic) Listed below (Recalc) 39,207 cf Overall - 26,174 cf Embedded = 13,033 cf x 40.0% Voids
#2	0.96'	24,866 cf	R-Tank Triple Modules (Prismatic) Listed below (Recalc) Inside #1 26,174 cf Overall x 95.0% Voids
30,079 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.71	7,194	0	0
6.16	7,194	39,207	39,207

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.96	6,232	0	0
5.16	6,232	26,174	26,174

Device	Routing	Invert	Outlet Devices
#1	Primary	0.46'	12.0" Round Culvert to DMH4 L= 4.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.46' / 0.44' S= 0.0050 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	0.46'	SF - Tube/Siphon/Float Valve X 28.00 Starts@3.21' Breaks@1.13' 0.504" Diameter, C= 0.600, 0.263" Trickle Diameter
#3	Secondary	0.96'	30.0" Round Bypass Culvert L= 6.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.96' / 0.75' S= 0.0318 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#4	Device 3	3.71'	4.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

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Type III 24-hr 10-Year Rainfall=4.60"

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Primary OutFlow Max=0.330 cfs @ 11.65 hrs HW=3.87' TW=0.75' (Dynamic Tailwater)

1=Culvert to DMH4 (Passes 0.330 cfs of 5.095 cfs potential flow)

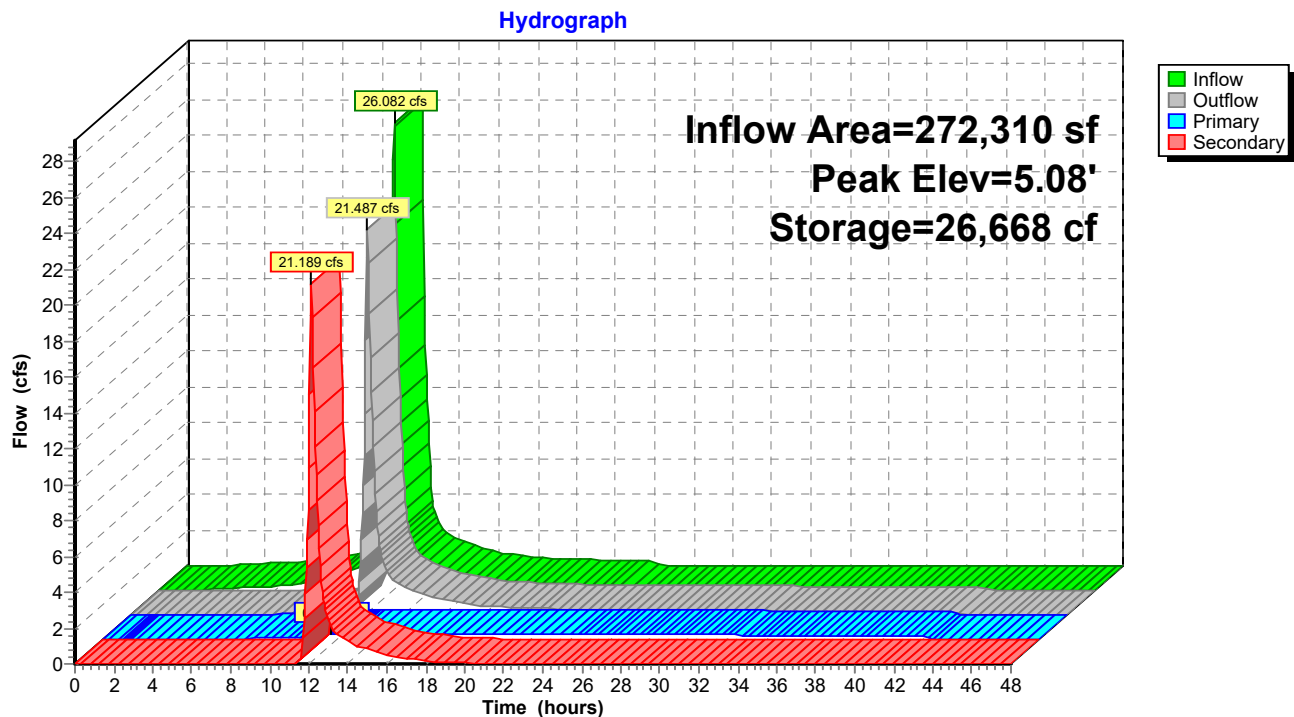
2=SF - Tube/Siphon/Float Valve (Orifice Controls 0.330 cfs @ 8.50 fps)

Secondary OutFlow Max=21.134 cfs @ 12.15 hrs HW=5.07' TW=2.64' (Dynamic Tailwater)

3=Bypass Culvert (Passes 21.134 cfs of 29.091 cfs potential flow)

4=Broad-Crested Rectangular Weir (Weir Controls 21.134 cfs @ 3.88 fps)

Pond 1P: R-Tank, StormFilter & OCS



Summary for Pond 2P: DMH-4

Inflow Area = 272,310 sf, 80.01% Impervious, Inflow Depth > 3.94" for 10-Year event
 Inflow = 21.487 cfs @ 12.15 hrs, Volume= 89,424 cf
 Outflow = 21.487 cfs @ 12.15 hrs, Volume= 89,424 cf, Atten= 0%, Lag= 0.0 min
 Primary = 21.487 cfs @ 12.15 hrs, Volume= 89,424 cf

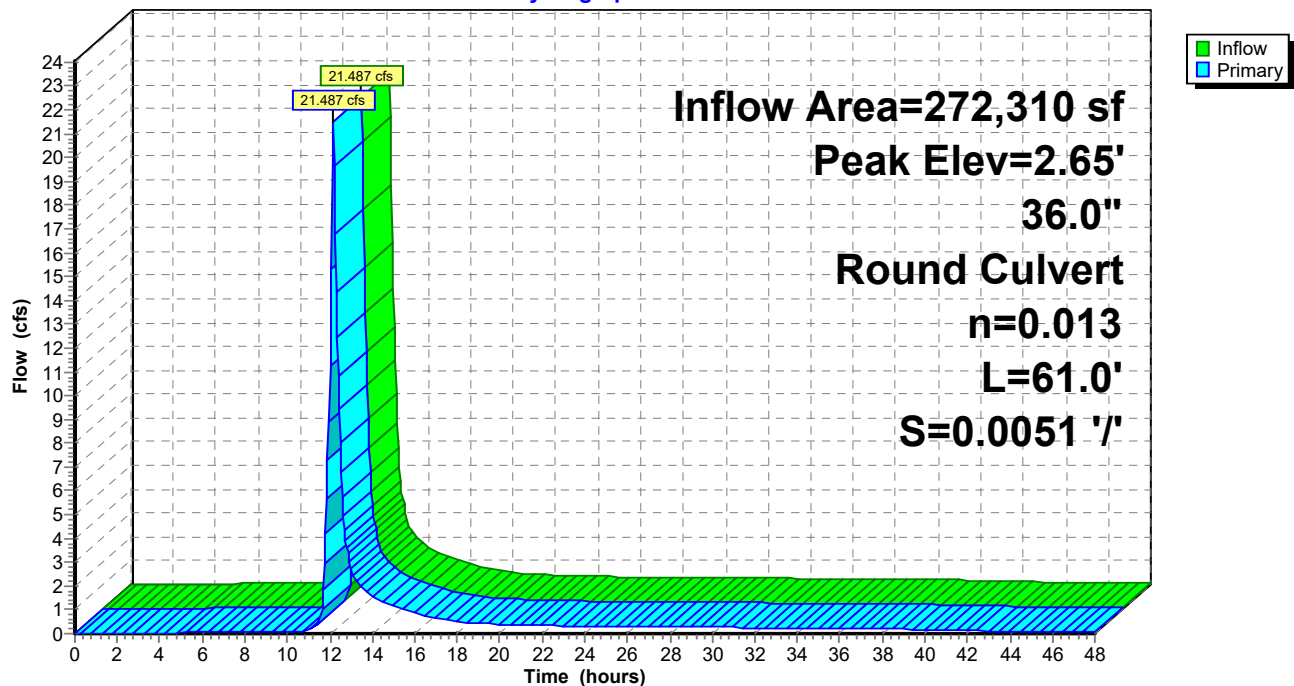
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 2.65' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.31'	36.0" Round Culvert L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.31' / 0.00' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=21.427 cfs @ 12.15 hrs HW=2.64' TW=0.00' (Dynamic Tailwater)
 1=Culvert (Barrel Controls 21.427 cfs @ 5.01 fps)

Pond 2P: DMH-4

Hydrograph

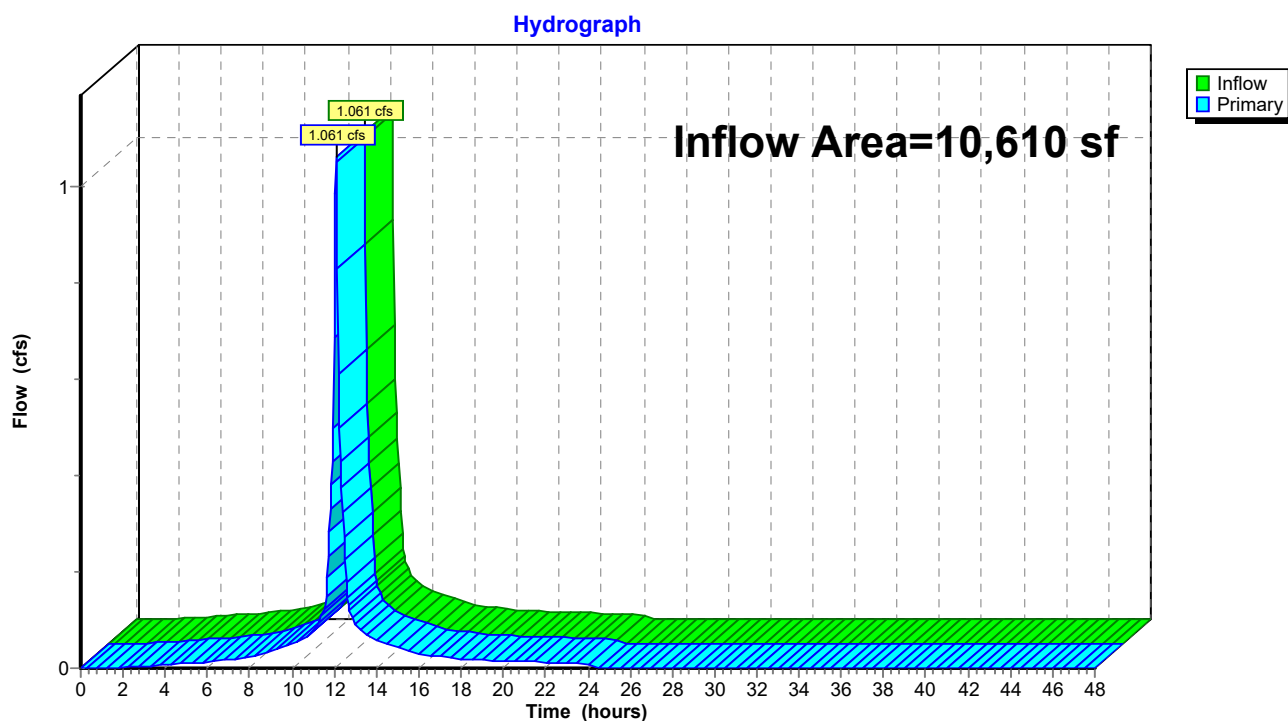


Summary for Link SP1: Commercial St Drainage

Inflow Area = 10,610 sf, 96.56% Impervious, Inflow Depth = 4.25" for 10-Year event
 Inflow = 1.061 cfs @ 12.09 hrs, Volume= 3,756 cf
 Primary = 1.061 cfs @ 12.09 hrs, Volume= 3,756 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

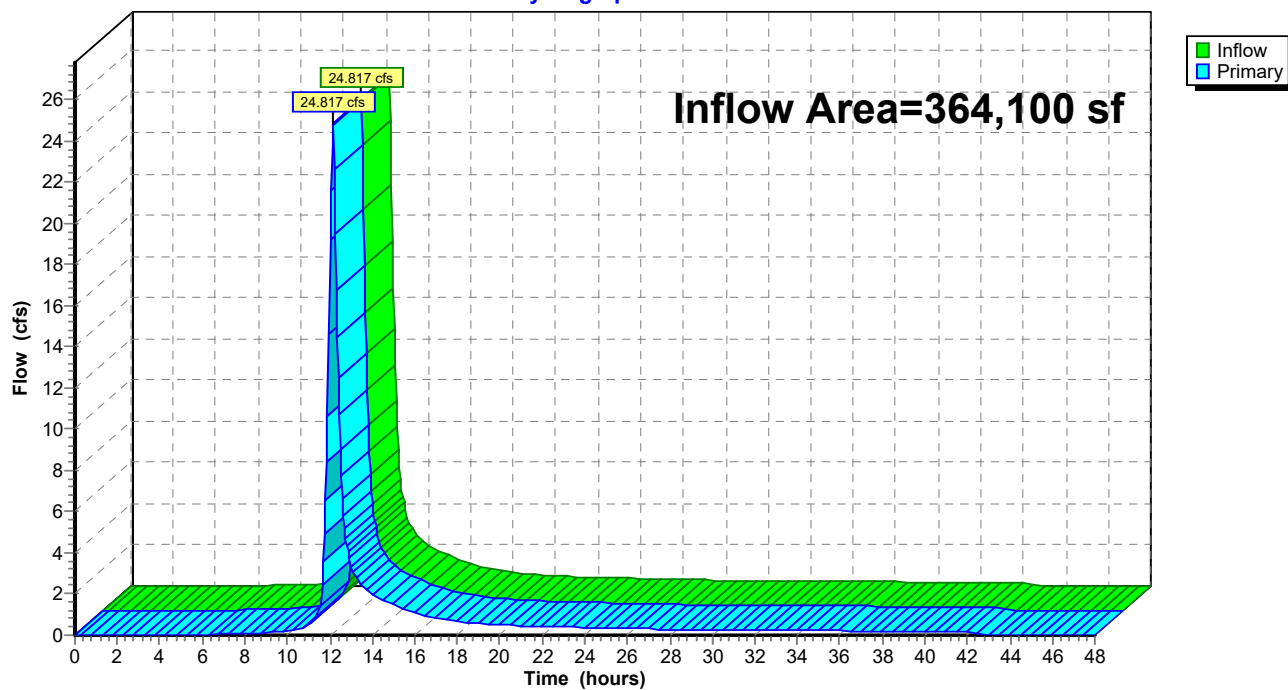
Link SP1: Commercial St Drainage



Summary for Link SP2: Fore River

Inflow Area = 364,100 sf, 64.38% Impervious, Inflow Depth > 3.66" for 10-Year event
Inflow = 24.817 cfs @ 12.14 hrs, Volume= 110,953 cf
Primary = 24.817 cfs @ 12.14 hrs, Volume= 110,953 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link SP2: Fore River**Hydrograph**

2020.05.11 Cold Storage Stormwater Analysis*Type III 24-hr 25-Year Rainfall=5.80"*

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Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Driveway Entrance Runoff Area=10,610 sf 96.56% Impervious Runoff Depth=5.44"
Tc=6.0 min CN=97 Runoff=1.344 cfs 4,814 cf

Subcatchment2S: Employee Parking Lot Runoff Area=29,580 sf 49.63% Impervious Runoff Depth=4.54"
Tc=6.0 min CN=89 Runoff=3.400 cfs 11,196 cf

Subcatchment3S: Eastern Parking Lot Runoff Area=107,665 sf 82.18% Impervious Runoff Depth=5.21"
Tc=6.0 min CN=95 Runoff=13.427 cfs 46,771 cf

Subcatchment4S: Office Building Roof Runoff Area=17,085 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.176 cfs 7,919 cf

Subcatchment5S: Warehouse Building Runoff Area=32,430 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=4.131 cfs 15,032 cf

Subcatchment6S: Warehouse Building Runoff Area=57,870 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=7.372 cfs 26,823 cf

Subcatchment7S: Area South of Building Runoff Area=27,680 sf 26.50% Impervious Runoff Depth=4.11"
Tc=6.0 min CN=85 Runoff=2.947 cfs 9,490 cf

Subcatchment8S: Western and Southern Runoff Area=91,790 sf 18.03% Impervious Runoff Depth=3.91"
Tc=0.0 min CN=83 Runoff=10.962 cfs 29,879 cf

Pond 1P: R-Tank, StormFilter & OCS Peak Elev=5.43' Storage=27,990 cf Inflow=33.451 cfs 117,230 cf
Primary=0.335 cfs 34,904 cf Secondary=28.849 cfs 81,274 cf Outflow=29.143 cfs 116,178 cf

Pond 2P: DMH-4 Peak Elev=3.16' Inflow=29.143 cfs 116,178 cf
36.0" Round Culvert n=0.013 L=61.0' S=0.0051 '/' Outflow=29.143 cfs 116,178 cf

Link SP1: Commercial St Drainage Inflow=1.344 cfs 4,814 cf
Primary=1.344 cfs 4,814 cf

Link SP2: Fore River Inflow=33.942 cfs 146,057 cf
Primary=33.942 cfs 146,057 cf

Total Runoff Area = 374,710 sf Runoff Volume = 151,923 cf Average Runoff Depth = 4.87"
34.70% Pervious = 130,040 sf 65.30% Impervious = 244,670 sf

2020.05.11 Cold Storage Stormwater Analysis

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Type III 24-hr 25-Year Rainfall=5.80"

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Summary for Subcatchment 1S: Driveway Entrance

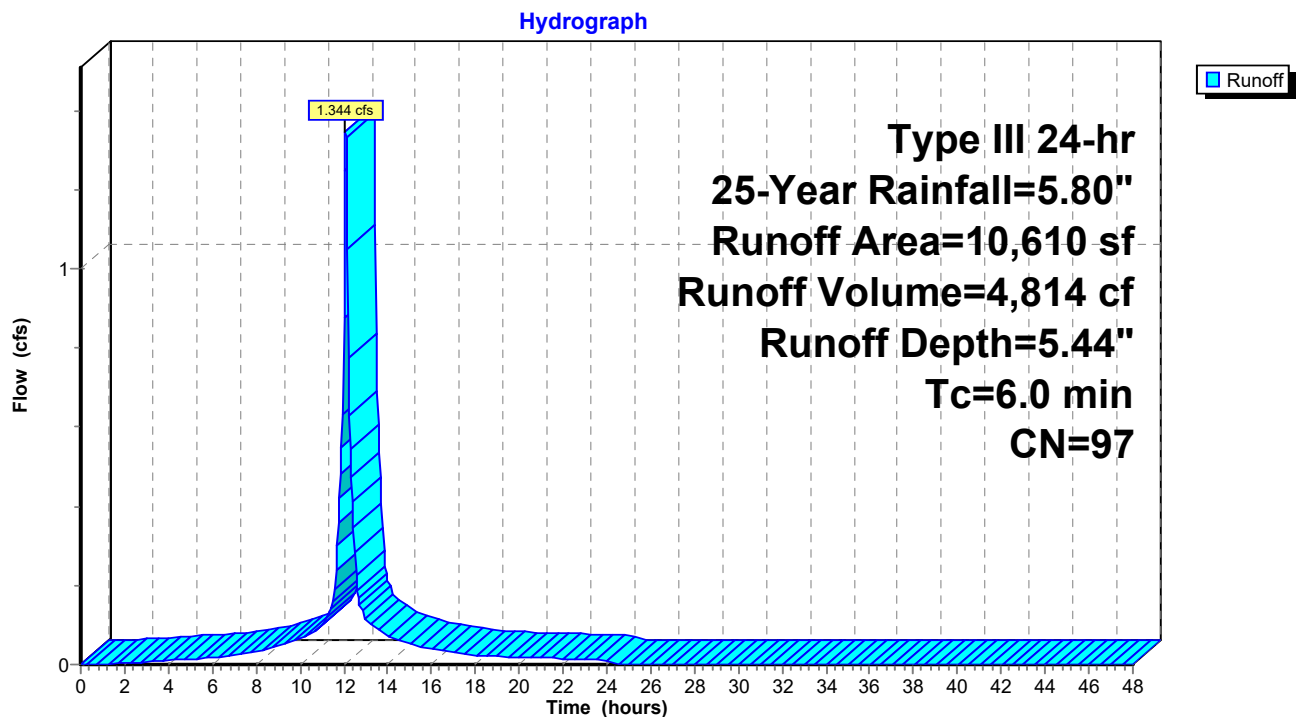
Runoff = 1.344 cfs @ 12.09 hrs, Volume= 4,814 cf, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	10,245	98	Impervious
	365	80	>75% Grass cover, Good, HSG D
	10,610	97	Weighted Average
	365		3.44% Pervious Area
	10,245		96.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Driveway Entrance



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Type III 24-hr 25-Year Rainfall=5.80"

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Summary for Subcatchment 2S: Employee Parking Lot

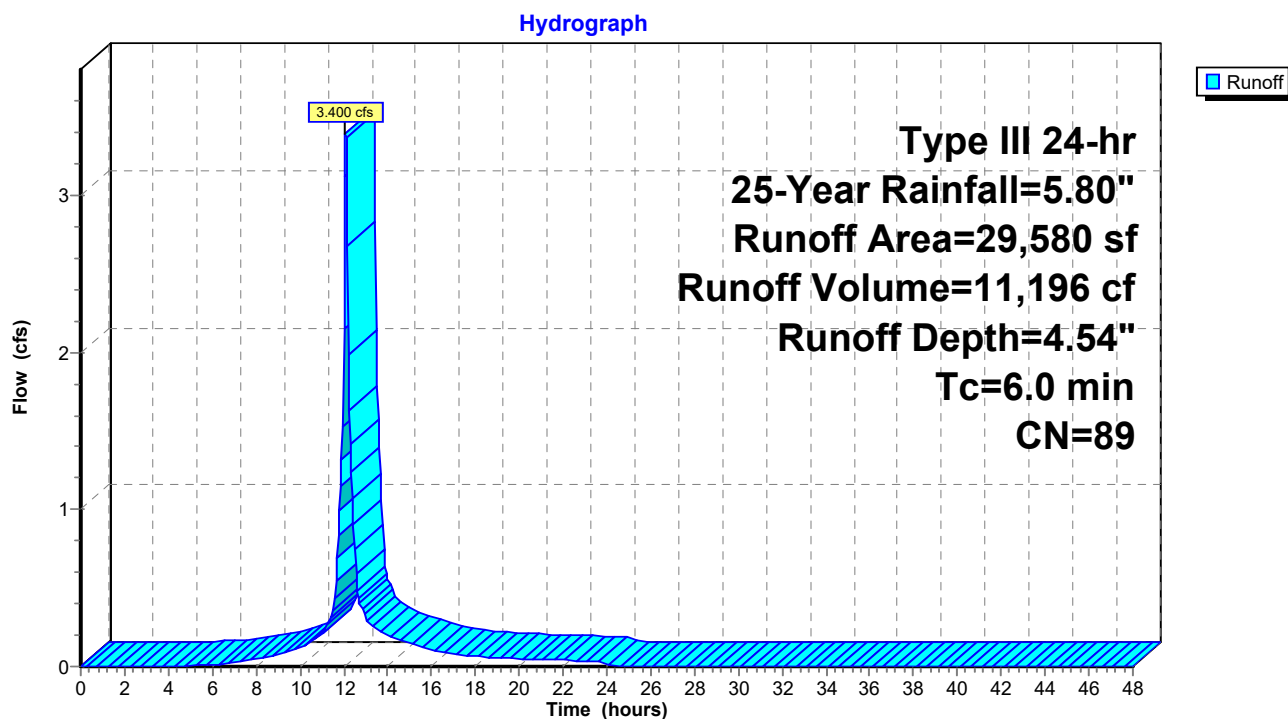
Runoff = 3.400 cfs @ 12.09 hrs, Volume= 11,196 cf, Depth= 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	14,680	98	Impervious
	14,900	80	>75% Grass cover, Good, HSG D
	29,580	89	Weighted Average
	14,900		50.37% Pervious Area
	14,680		49.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: Employee Parking Lot



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Type III 24-hr 25-Year Rainfall=5.80"

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Summary for Subcatchment 3S: Eastern Parking Lot and Loading Zone

Runoff = 13.427 cfs @ 12.09 hrs, Volume= 46,771 cf, Depth= 5.21"

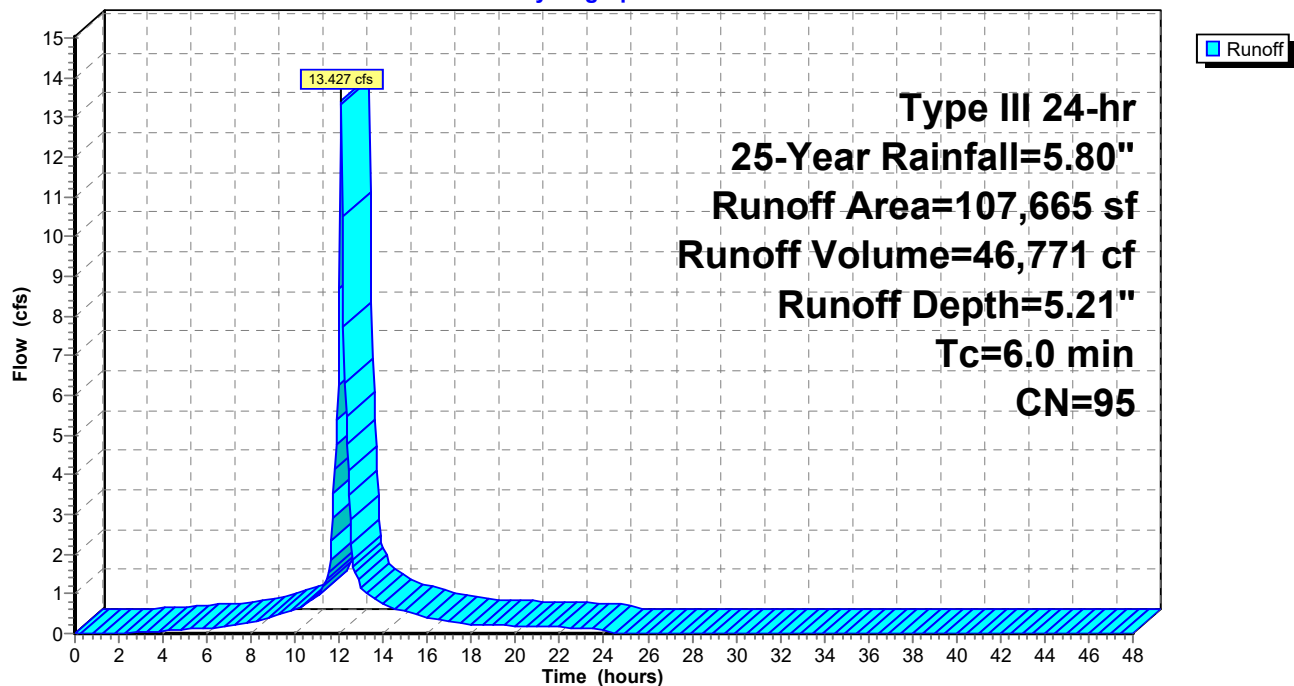
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	88,475	98	Impervious
	19,190	80	>75% Grass cover, Good, HSG D
	107,665	95	Weighted Average
	19,190		17.82% Pervious Area
	88,475		82.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 3S: Eastern Parking Lot and Loading Zone

Hydrograph



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Type III 24-hr 25-Year Rainfall=5.80"

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Summary for Subcatchment 4S: Office Building Roof

Runoff = 2.176 cfs @ 12.09 hrs, Volume= 7,919 cf, Depth= 5.56"

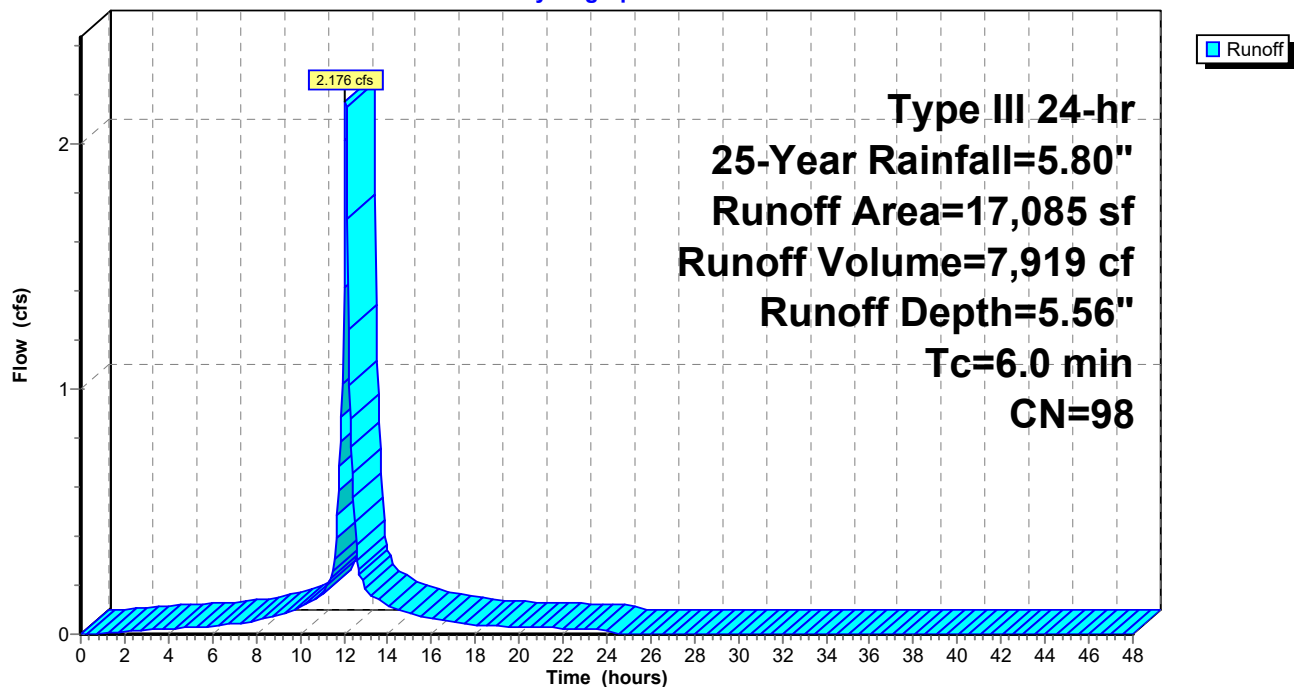
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	17,085	98	Impervious
	17,085		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 4S: Office Building Roof

Hydrograph



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Type III 24-hr 25-Year Rainfall=5.80"

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Summary for Subcatchment 5S: Warehouse Building Roof - West

Runoff = 4.131 cfs @ 12.09 hrs, Volume= 15,032 cf, Depth= 5.56"

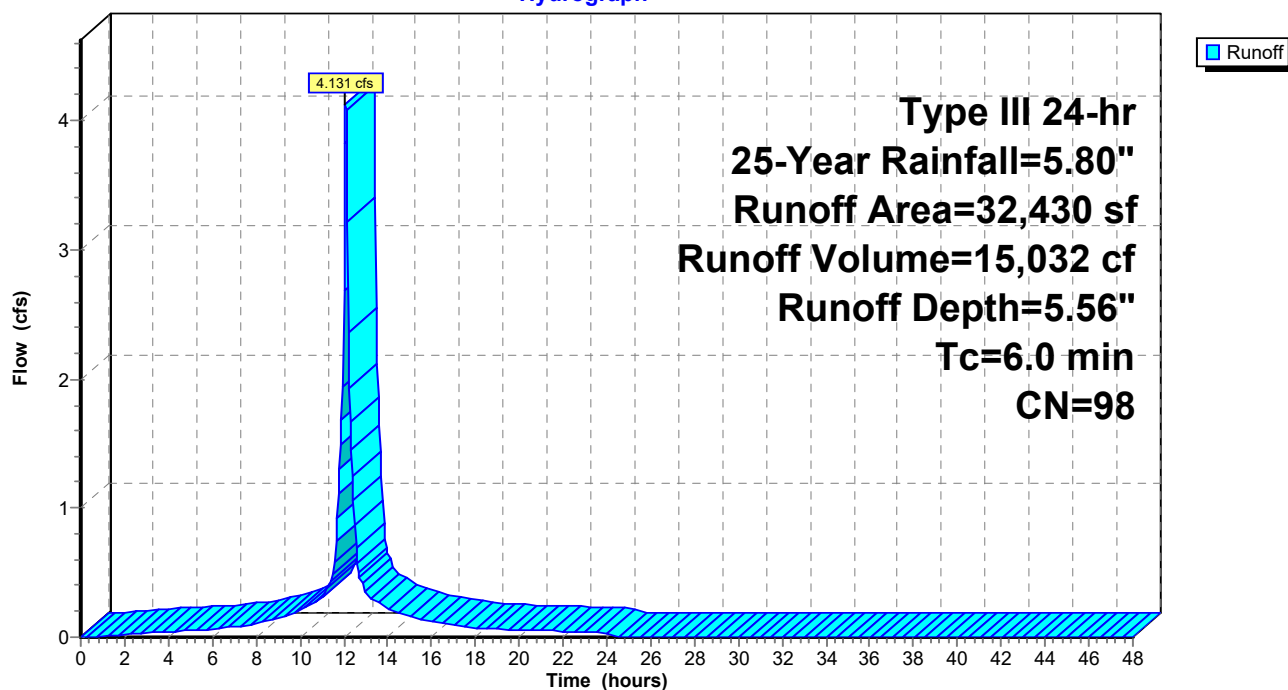
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	32,430	98	Impervious
	32,430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 5S: Warehouse Building Roof - West

Hydrograph



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Type III 24-hr 25-Year Rainfall=5.80"

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Summary for Subcatchment 6S: Warehouse Building Roof - East

Runoff = 7.372 cfs @ 12.09 hrs, Volume= 26,823 cf, Depth= 5.56"

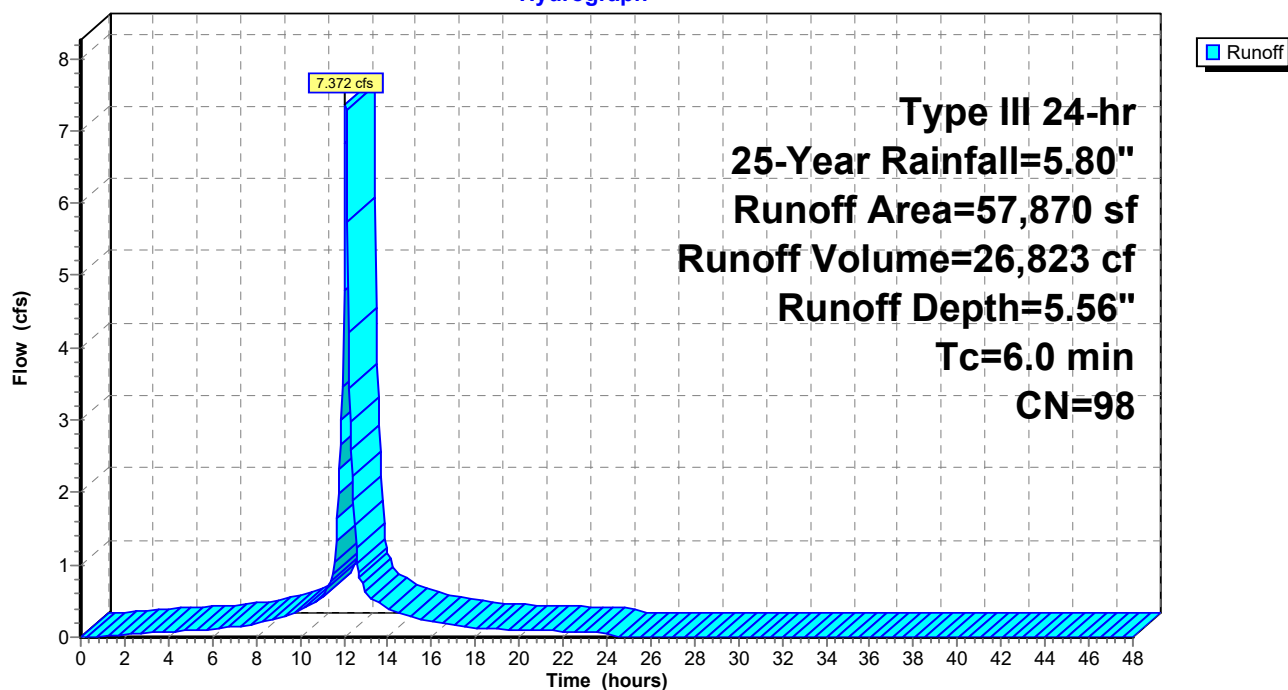
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	57,870	98	Impervious
	57,870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 6S: Warehouse Building Roof - East

Hydrograph



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Type III 24-hr 25-Year Rainfall=5.80"

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Summary for Subcatchment 7S: Area South of Building

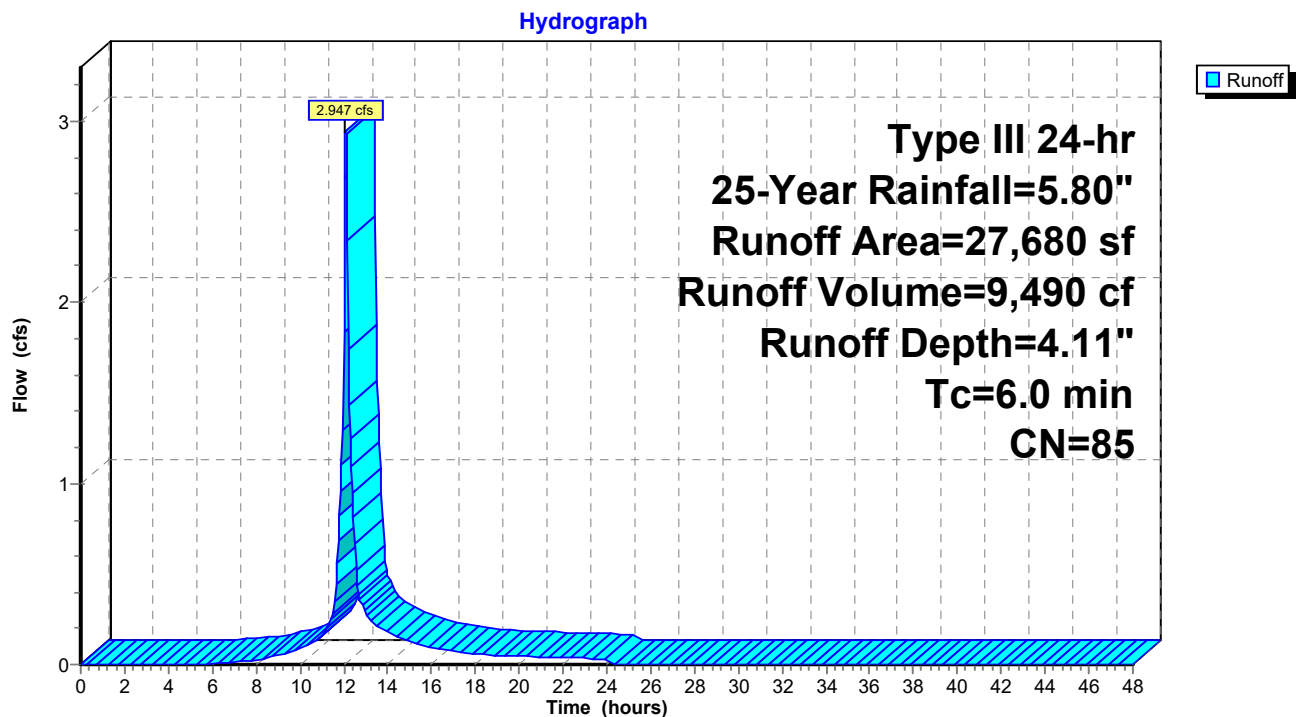
Runoff = 2.947 cfs @ 12.09 hrs, Volume= 9,490 cf, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,335	98	Impervious
	20,345	80	>75% Grass cover, Good, HSG D
	27,680	85	Weighted Average
	20,345		73.50% Pervious Area
	7,335		26.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 7S: Area South of Building



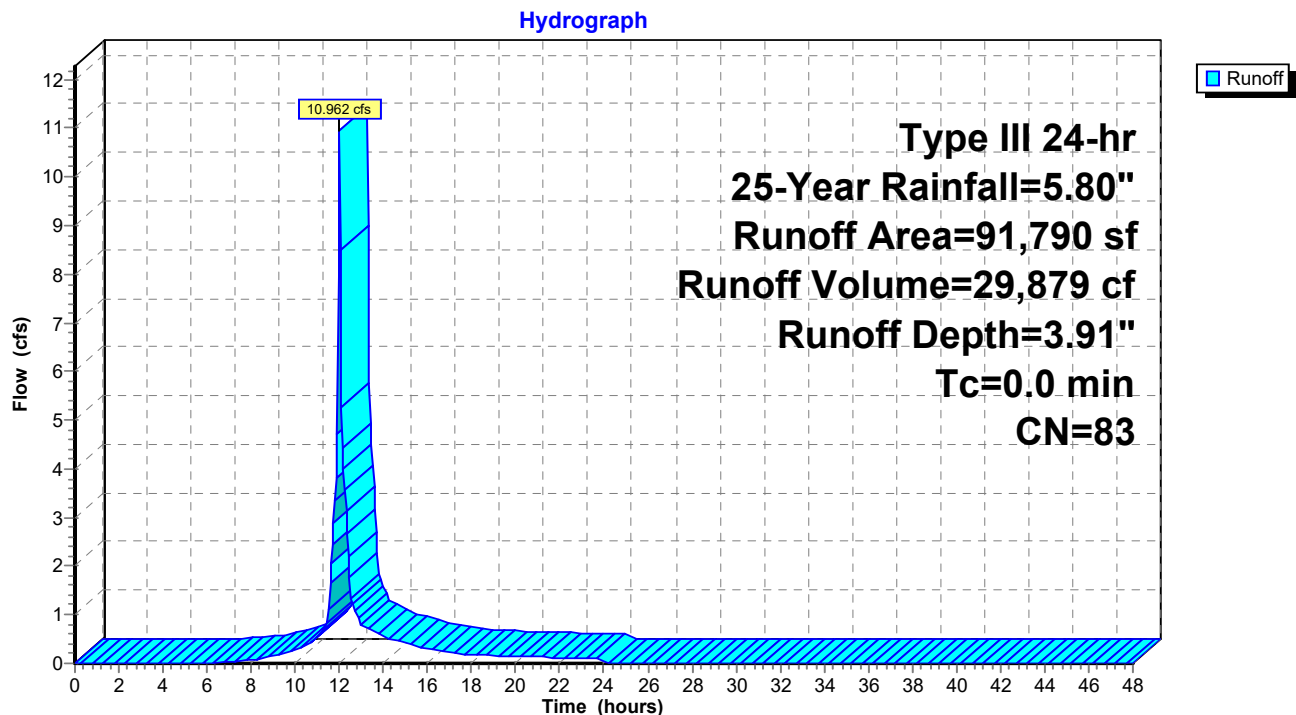
Summary for Subcatchment 8S: Western and Southern Edges of Site

Runoff = 10.962 cfs @ 12.00 hrs, Volume= 29,879 cf, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	16,550	98	Impervious
	75,240	80	>75% Grass cover, Good, HSG D
	91,790	83	Weighted Average
	75,240		81.97% Pervious Area
	16,550		18.03% Impervious Area

Subcatchment 8S: Western and Southern Edges of Site



2020.05.11 Cold Storage Stormwater Analysis

Type III 24-hr 25-Year Rainfall=5.80"

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Summary for Pond 1P: R-Tank, StormFilter & OCS

Inflow Area = 272,310 sf, 80.01% Impervious, Inflow Depth = 5.17" for 25-Year event
 Inflow = 33.451 cfs @ 12.09 hrs, Volume= 117,230 cf
 Outflow = 29.143 cfs @ 12.13 hrs, Volume= 116,178 cf, Atten= 13%, Lag= 2.6 min
 Primary = 0.335 cfs @ 10.96 hrs, Volume= 34,904 cf
 Secondary = 28.849 cfs @ 12.13 hrs, Volume= 81,274 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 5.43' @ 12.14 hrs Surf.Area= 7,194 sf Storage= 27,990 cf

Flood Elev= 9.42' Surf.Area= 7,194 sf Storage= 30,079 cf

Plug-Flow detention time= 230.4 min calculated for 116,057 cf (99% of inflow)

Center-of-Mass det. time= 225.7 min (987.6 - 761.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.71'	5,213 cf	Stone Envelope (Prismatic) Listed below (Recalc) 39,207 cf Overall - 26,174 cf Embedded = 13,033 cf x 40.0% Voids
#2	0.96'	24,866 cf	R-Tank Triple Modules (Prismatic) Listed below (Recalc) Inside #1 26,174 cf Overall x 95.0% Voids
30,079 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.71	7,194	0	0
6.16	7,194	39,207	39,207

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.96	6,232	0	0
5.16	6,232	26,174	26,174

Device	Routing	Invert	Outlet Devices
#1	Primary	0.46'	12.0" Round Culvert to DMH4 L= 4.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.46' / 0.44' S= 0.0050 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	0.46'	SF - Tube/Siphon/Float Valve X 28.00 Starts@3.21' Breaks@1.13' 0.504" Diameter, C= 0.600, 0.263" Trickle Diameter
#3	Secondary	0.96'	30.0" Round Bypass Culvert L= 6.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.96' / 0.75' S= 0.0318 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#4	Device 3	3.71'	4.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

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Type III 24-hr 25-Year Rainfall=5.80"

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Primary OutFlow Max=0.332 cfs @ 10.96 hrs HW=3.80' TW=0.65' (Dynamic Tailwater)

1=Culvert to DMH4 (Passes 0.332 cfs of 5.029 cfs potential flow)

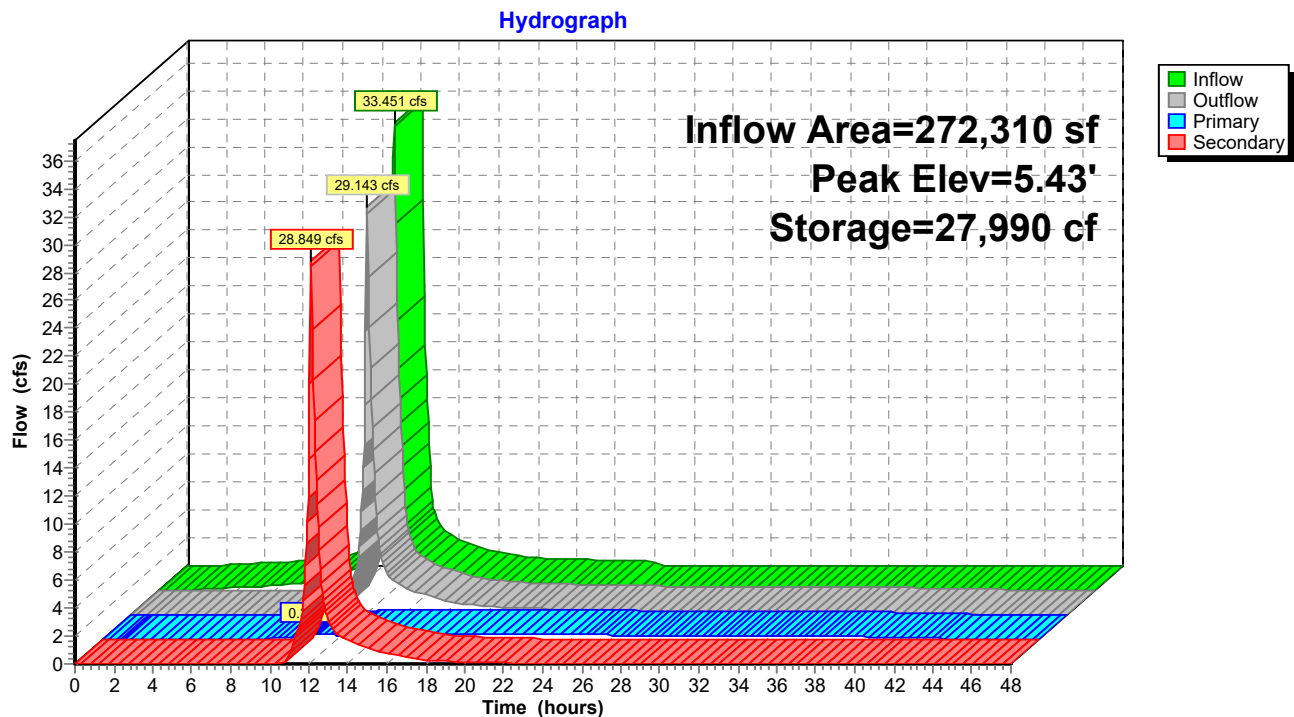
2=SF - Tube/Siphon/Float Valve (Orifice Controls 0.332 cfs @ 8.55 fps)

Secondary OutFlow Max=28.149 cfs @ 12.13 hrs HW=5.40' TW=3.12' (Dynamic Tailwater)

3=Bypass Culvert (Inlet Controls 28.149 cfs @ 5.73 fps)

4=Broad-Crested Rectangular Weir (Passes 28.149 cfs of 29.051 cfs potential flow)

Pond 1P: R-Tank, StormFilter & OCS



Summary for Pond 2P: DMH-4

Inflow Area = 272,310 sf, 80.01% Impervious, Inflow Depth > 5.12" for 25-Year event
 Inflow = 29.143 cfs @ 12.13 hrs, Volume= 116,178 cf
 Outflow = 29.143 cfs @ 12.13 hrs, Volume= 116,178 cf, Atten= 0%, Lag= 0.0 min
 Primary = 29.143 cfs @ 12.13 hrs, Volume= 116,178 cf

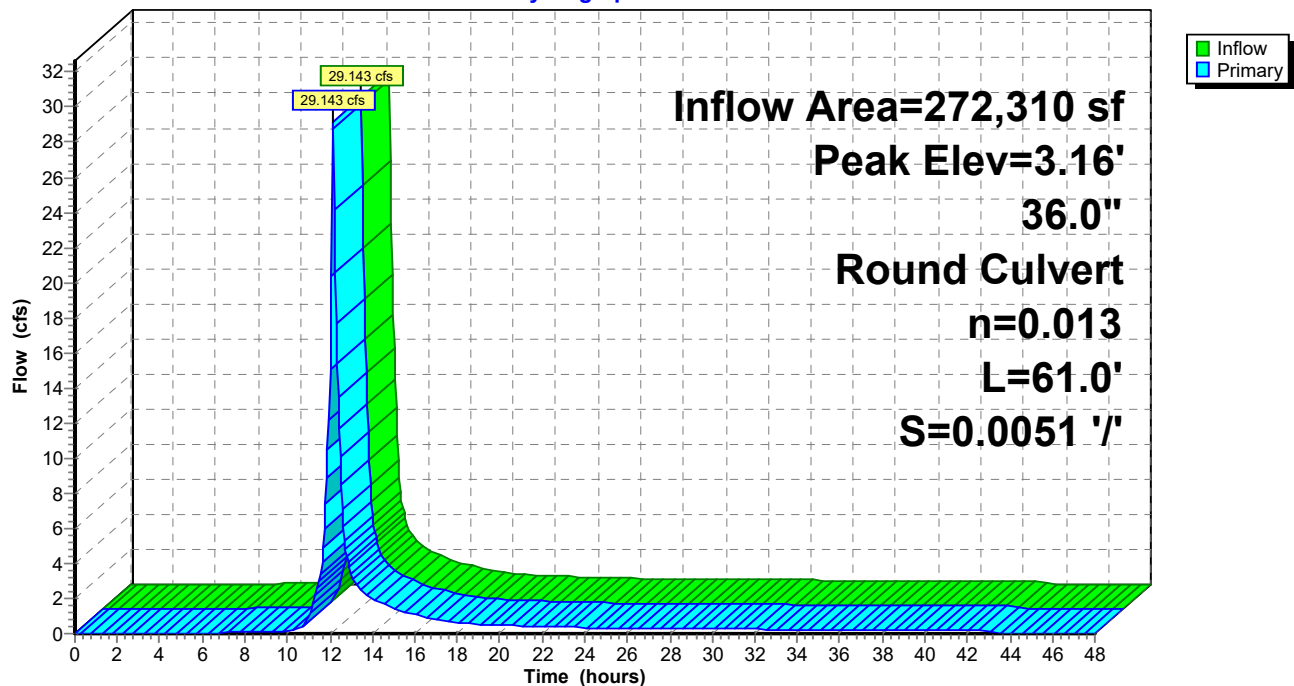
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.16' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.31'	36.0" Round Culvert L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.31' / 0.00' S= 0.0051 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=28.534 cfs @ 12.13 hrs HW=3.12' TW=0.00' (Dynamic Tailwater)
 1=Culvert (Barrel Controls 28.534 cfs @ 5.38 fps)

Pond 2P: DMH-4

Hydrograph

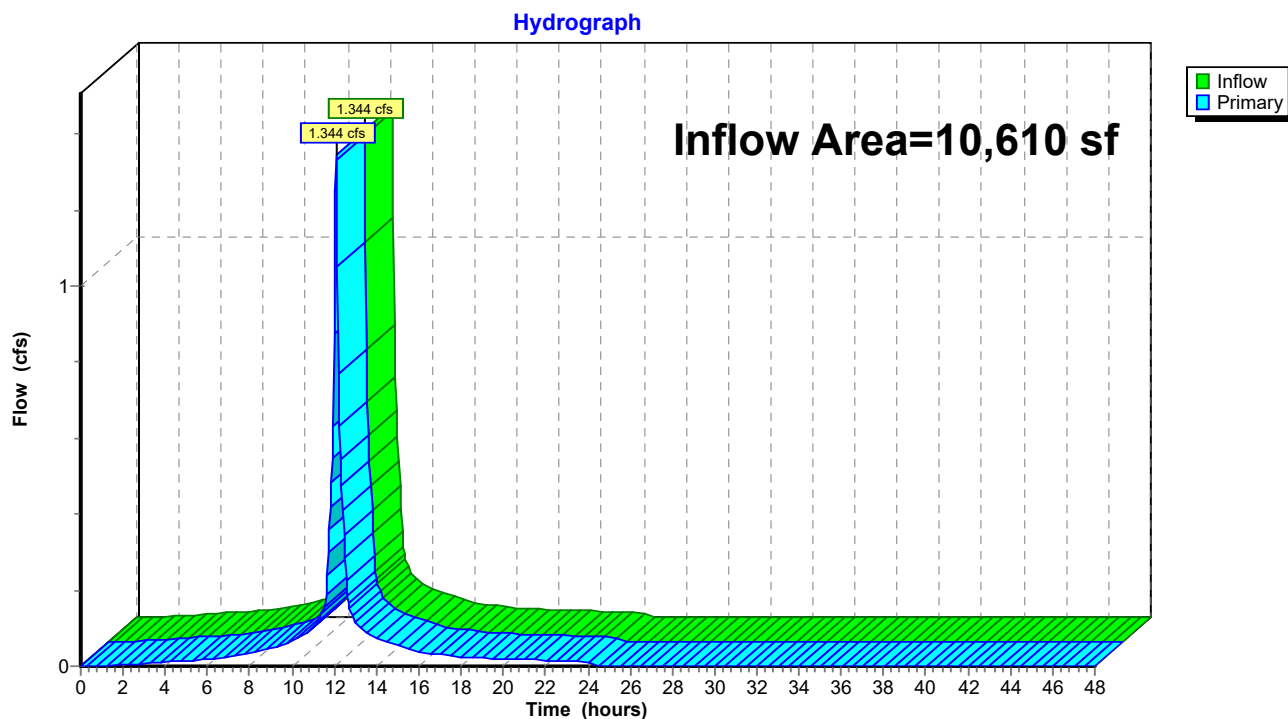


Summary for Link SP1: Commercial St Drainage

Inflow Area = 10,610 sf, 96.56% Impervious, Inflow Depth = 5.44" for 25-Year event
 Inflow = 1.344 cfs @ 12.09 hrs, Volume= 4,814 cf
 Primary = 1.344 cfs @ 12.09 hrs, Volume= 4,814 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link SP1: Commercial St Drainage



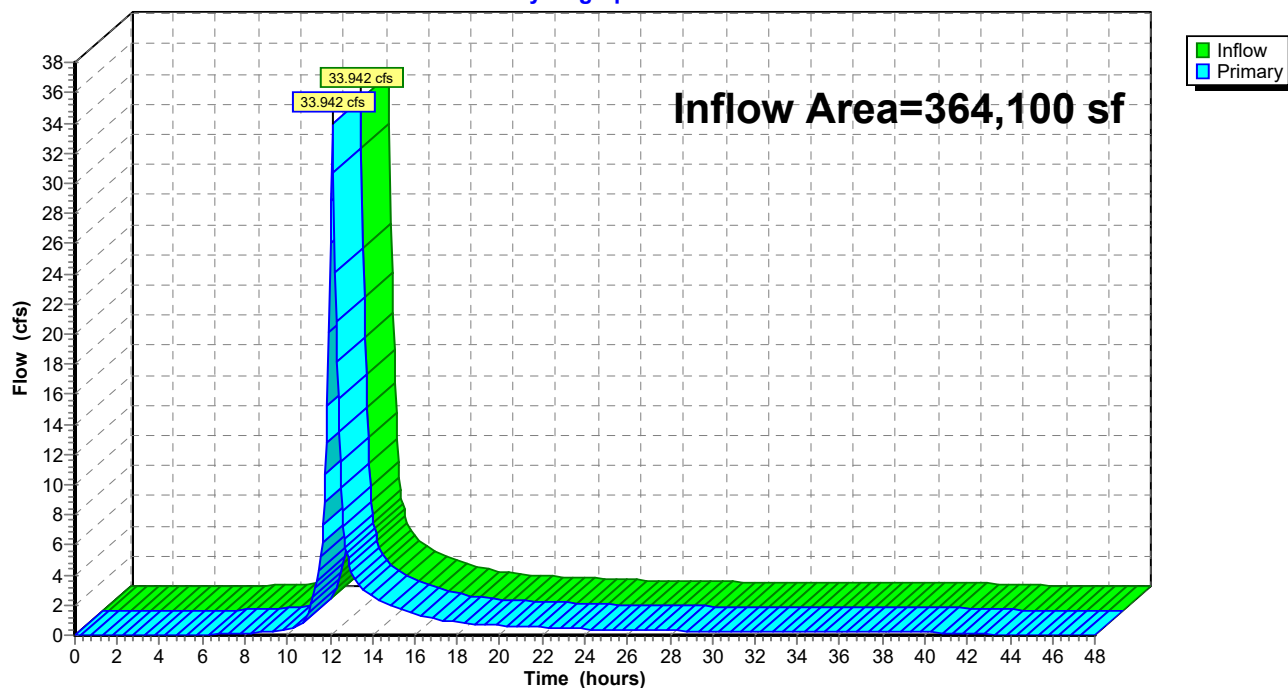
Summary for Link SP2: Fore River

Inflow Area = 364,100 sf, 64.38% Impervious, Inflow Depth > 4.81" for 25-Year event
 Inflow = 33.942 cfs @ 12.12 hrs, Volume= 146,057 cf
 Primary = 33.942 cfs @ 12.12 hrs, Volume= 146,057 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link SP2: Fore River

Hydrograph



2020.05.11 Cold Storage Stormwater Analysis*Type III 24-hr Custom Rainfall=1.44"*

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Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Driveway Entrance Runoff Area=10,610 sf 96.56% Impervious Runoff Depth=1.13"
Tc=6.0 min CN=97 Runoff=0.302 cfs 995 cf

Subcatchment2S: Employee Parking Lot Runoff Area=29,580 sf 49.63% Impervious Runoff Depth=0.59"
Tc=6.0 min CN=89 Runoff=0.450 cfs 1,444 cf

Subcatchment3S: Eastern Parking Lot Runoff Area=107,665 sf 82.18% Impervious Runoff Depth=0.96"
Tc=6.0 min CN=95 Runoff=2.691 cfs 8,589 cf

Subcatchment4S: Office Building Roof Runoff Area=17,085 sf 100.00% Impervious Runoff Depth=1.22"
Tc=6.0 min CN=98 Runoff=0.514 cfs 1,739 cf

Subcatchment5S: Warehouse Building Runoff Area=32,430 sf 100.00% Impervious Runoff Depth=1.22"
Tc=6.0 min CN=98 Runoff=0.975 cfs 3,300 cf

Subcatchment6S: Warehouse Building Runoff Area=57,870 sf 100.00% Impervious Runoff Depth=1.22"
Tc=6.0 min CN=98 Runoff=1.739 cfs 5,889 cf

Subcatchment7S: Area South of Building Runoff Area=27,680 sf 26.50% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=85 Runoff=0.280 cfs 956 cf

Subcatchment8S: Western and Southern Runoff Area=91,790 sf 18.03% Impervious Runoff Depth=0.34"
Tc=0.0 min CN=83 Runoff=0.855 cfs 2,638 cf

Pond 1P: R-Tank, StormFilter & OCS Peak Elev=3.20' Storage=14,842 cf Inflow=6.644 cfs 21,916 cf
Primary=0.306 cfs 21,800 cf Secondary=0.000 cfs 0 cf Outflow=0.306 cfs 21,800 cf

Pond 2P: DMH-4 Peak Elev=0.55' Inflow=0.306 cfs 21,800 cf
36.0" Round Culvert n=0.013 L=61.0' S=0.0051 ' /' Outflow=0.306 cfs 21,800 cf

Link SP1: Commercial St Drainage Inflow=0.302 cfs 995 cf
Primary=0.302 cfs 995 cf

Link SP2: Fore River Inflow=0.913 cfs 24,437 cf
Primary=0.913 cfs 24,437 cf

Total Runoff Area = 374,710 sf Runoff Volume = 25,549 cf Average Runoff Depth = 0.82"
34.70% Pervious = 130,040 sf 65.30% Impervious = 244,670 sf

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Type III 24-hr Custom Rainfall=1.44"

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Summary for Subcatchment 1S: Driveway Entrance

Runoff = 0.302 cfs @ 12.09 hrs, Volume= 995 cf, Depth= 1.13"

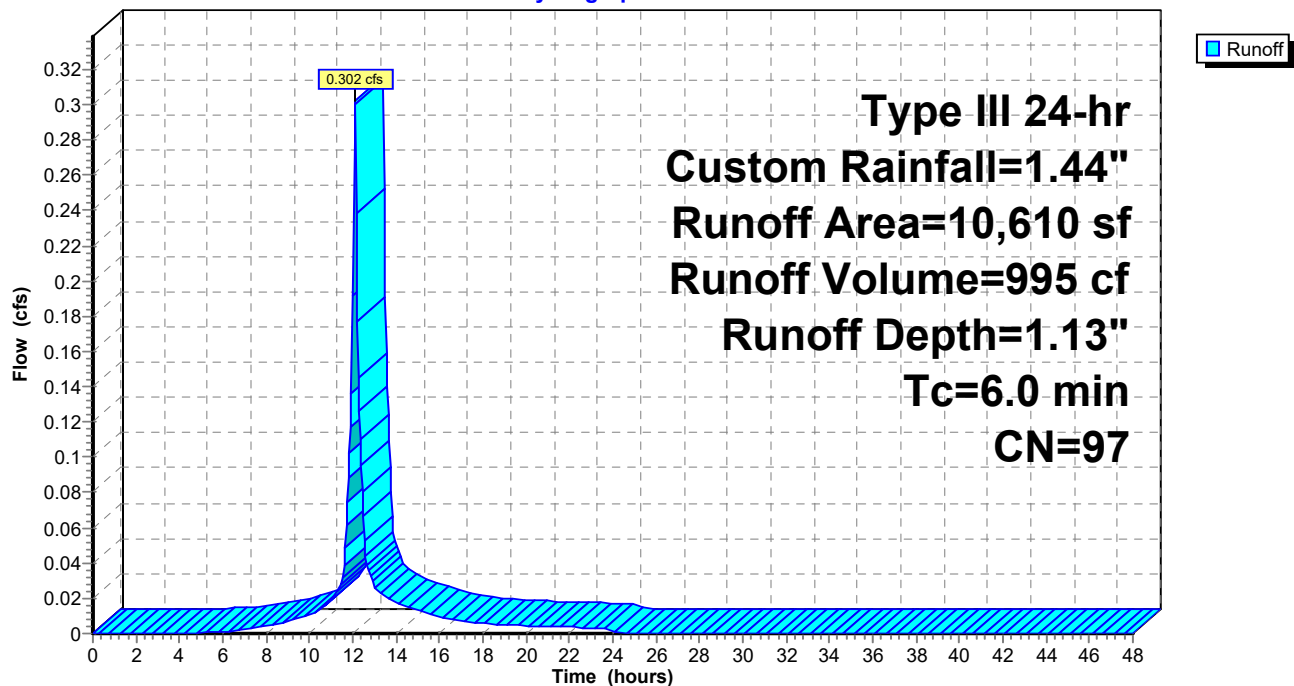
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=1.44"

	Area (sf)	CN	Description
*	10,245	98	Impervious
	365	80	>75% Grass cover, Good, HSG D
	10,610	97	Weighted Average
	365		3.44% Pervious Area
	10,245		96.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Driveway Entrance

Hydrograph



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Type III 24-hr Custom Rainfall=1.44"

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Summary for Subcatchment 2S: Employee Parking Lot

Runoff = 0.450 cfs @ 12.10 hrs, Volume= 1,444 cf, Depth= 0.59"

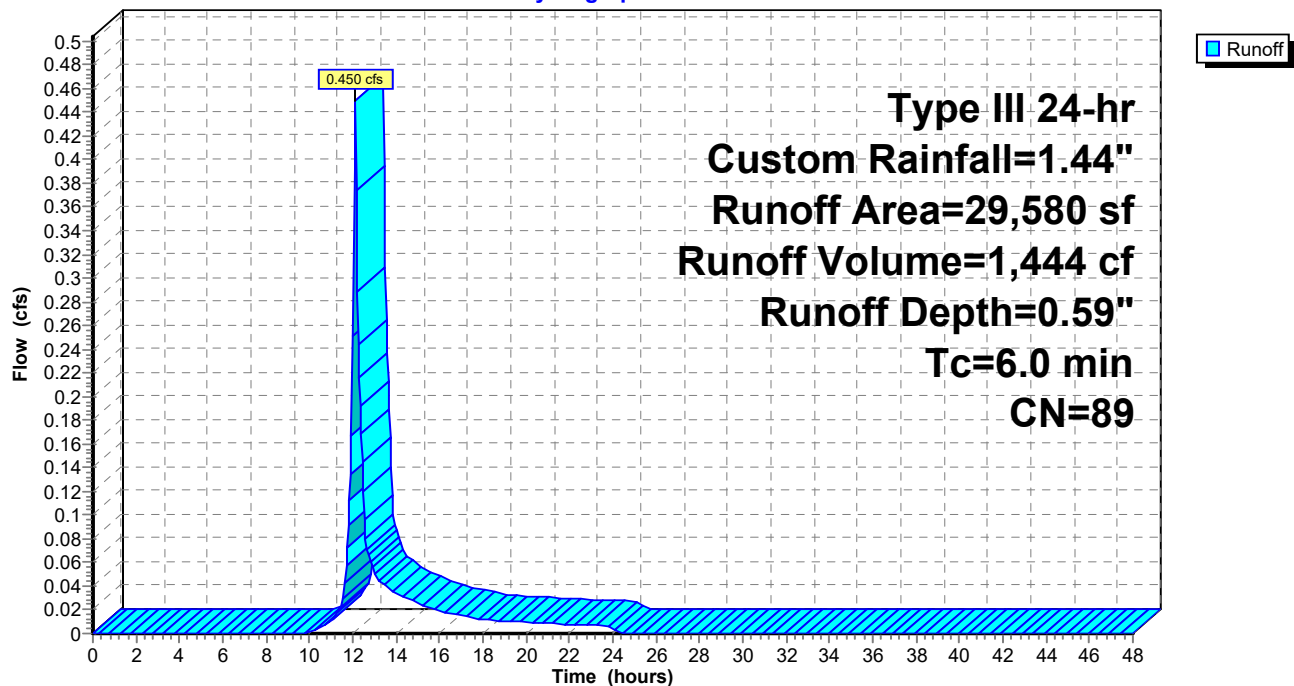
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=1.44"

	Area (sf)	CN	Description
*	14,680	98	Impervious
	14,900	80	>75% Grass cover, Good, HSG D
	29,580	89	Weighted Average
	14,900		50.37% Pervious Area
	14,680		49.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: Employee Parking Lot

Hydrograph



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Type III 24-hr Custom Rainfall=1.44"

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Summary for Subcatchment 3S: Eastern Parking Lot and Loading Zone

Runoff = 2.691 cfs @ 12.09 hrs, Volume= 8,589 cf, Depth= 0.96"

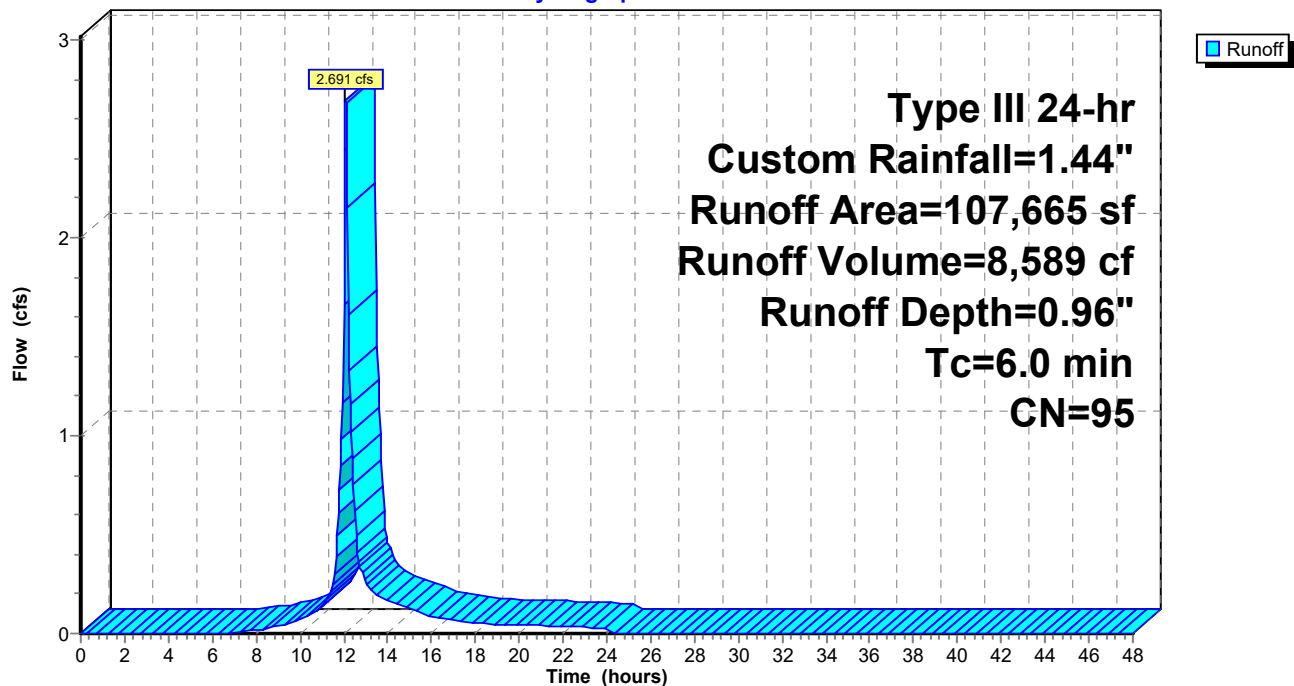
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=1.44"

	Area (sf)	CN	Description
*	88,475	98	Impervious
	19,190	80	>75% Grass cover, Good, HSG D
	107,665	95	Weighted Average
	19,190		17.82% Pervious Area
	88,475		82.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 3S: Eastern Parking Lot and Loading Zone

Hydrograph



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Type III 24-hr Custom Rainfall=1.44"

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Summary for Subcatchment 4S: Office Building Roof

Runoff = 0.514 cfs @ 12.09 hrs, Volume= 1,739 cf, Depth= 1.22"

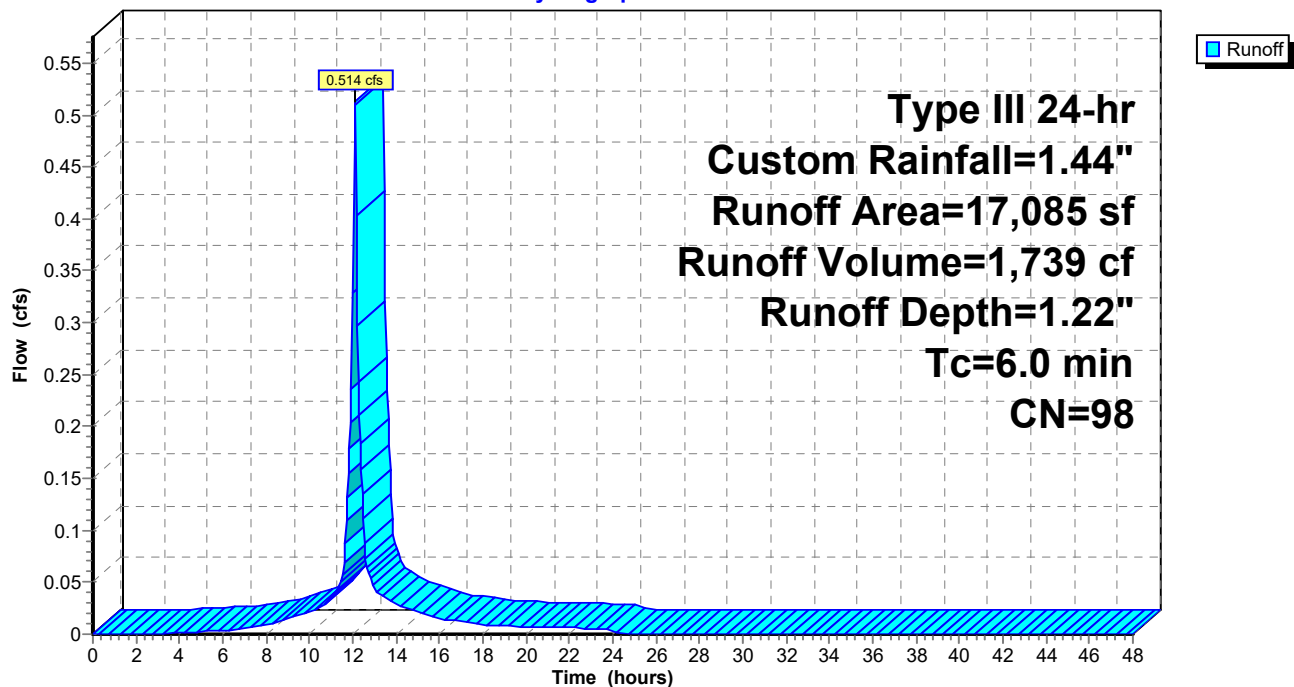
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=1.44"

	Area (sf)	CN	Description
*	17,085	98	Impervious
	17,085		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 4S: Office Building Roof

Hydrograph



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Type III 24-hr Custom Rainfall=1.44"

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Summary for Subcatchment 5S: Warehouse Building Roof - West

Runoff = 0.975 cfs @ 12.09 hrs, Volume= 3,300 cf, Depth= 1.22"

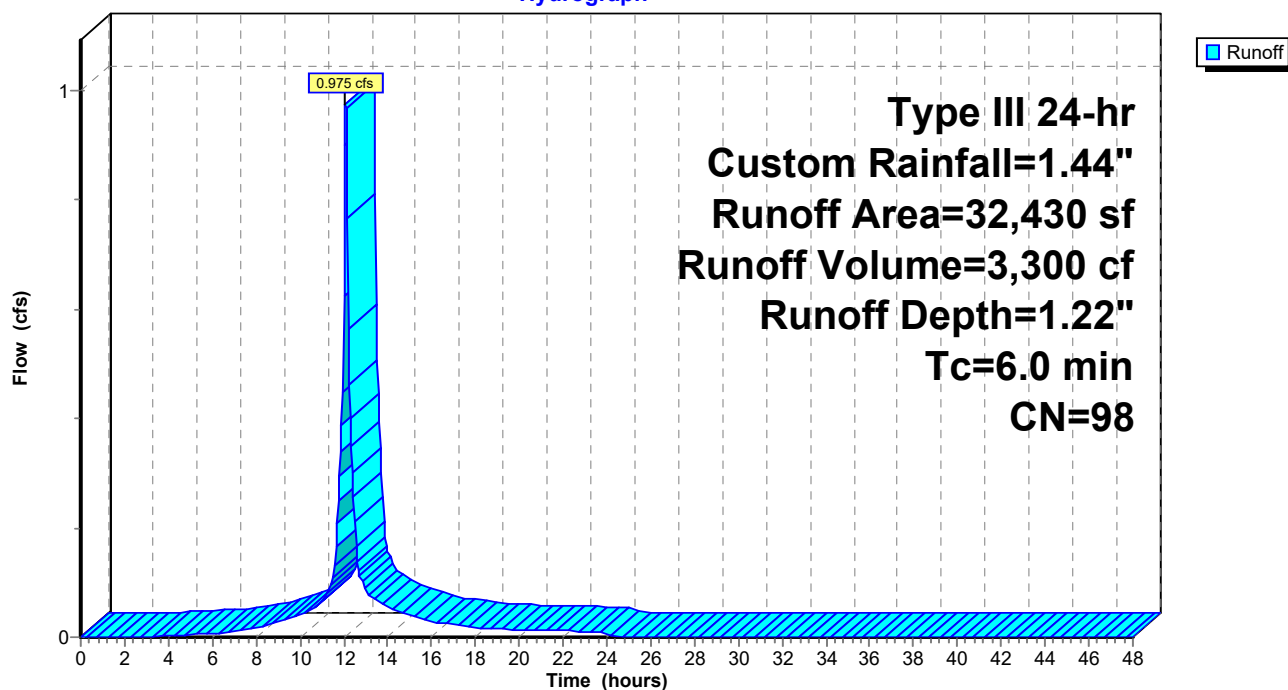
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=1.44"

	Area (sf)	CN	Description
*	32,430	98	Impervious
	32,430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 5S: Warehouse Building Roof - West

Hydrograph



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Type III 24-hr Custom Rainfall=1.44"

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Summary for Subcatchment 6S: Warehouse Building Roof - East

Runoff = 1.739 cfs @ 12.09 hrs, Volume= 5,889 cf, Depth= 1.22"

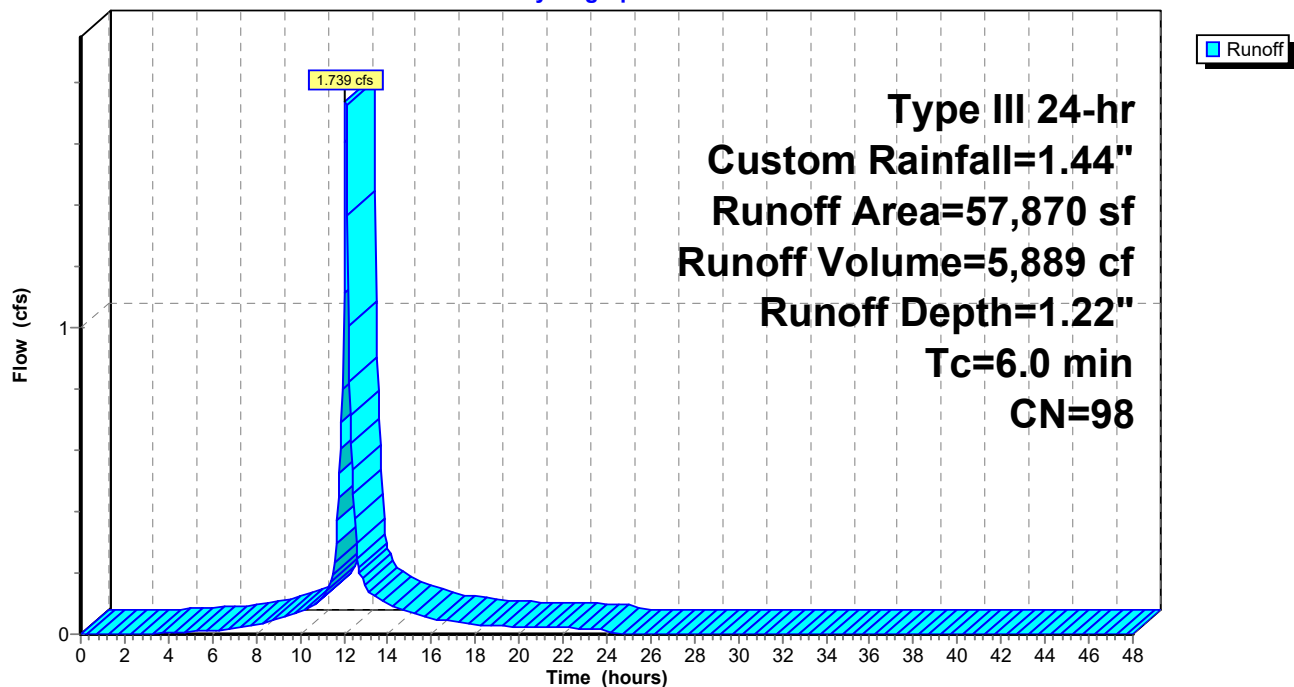
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=1.44"

	Area (sf)	CN	Description
*	57,870	98	Impervious
	57,870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 6S: Warehouse Building Roof - East

Hydrograph



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Type III 24-hr Custom Rainfall=1.44"

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Summary for Subcatchment 7S: Area South of Building

Runoff = 0.280 cfs @ 12.10 hrs, Volume= 956 cf, Depth= 0.41"

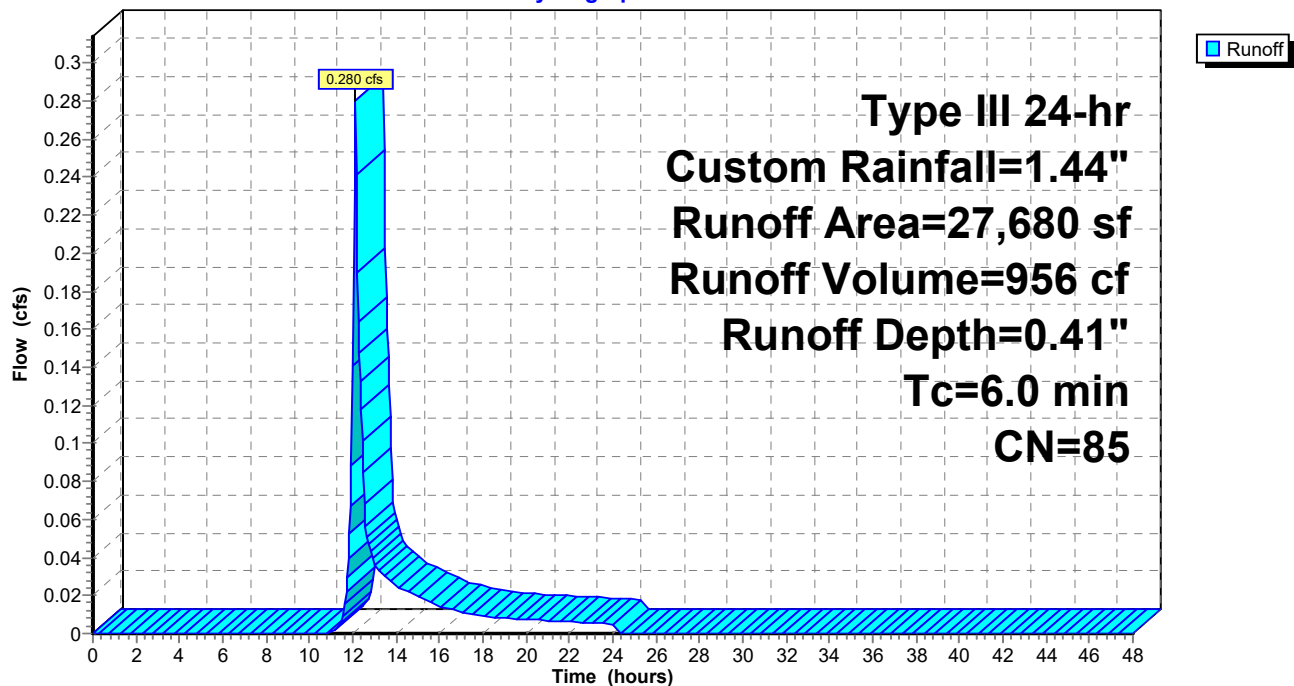
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=1.44"

	Area (sf)	CN	Description
*	7,335	98	Impervious
	20,345	80	>75% Grass cover, Good, HSG D
	27,680	85	Weighted Average
	20,345		73.50% Pervious Area
	7,335		26.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 7S: Area South of Building

Hydrograph



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Type III 24-hr Custom Rainfall=1.44"

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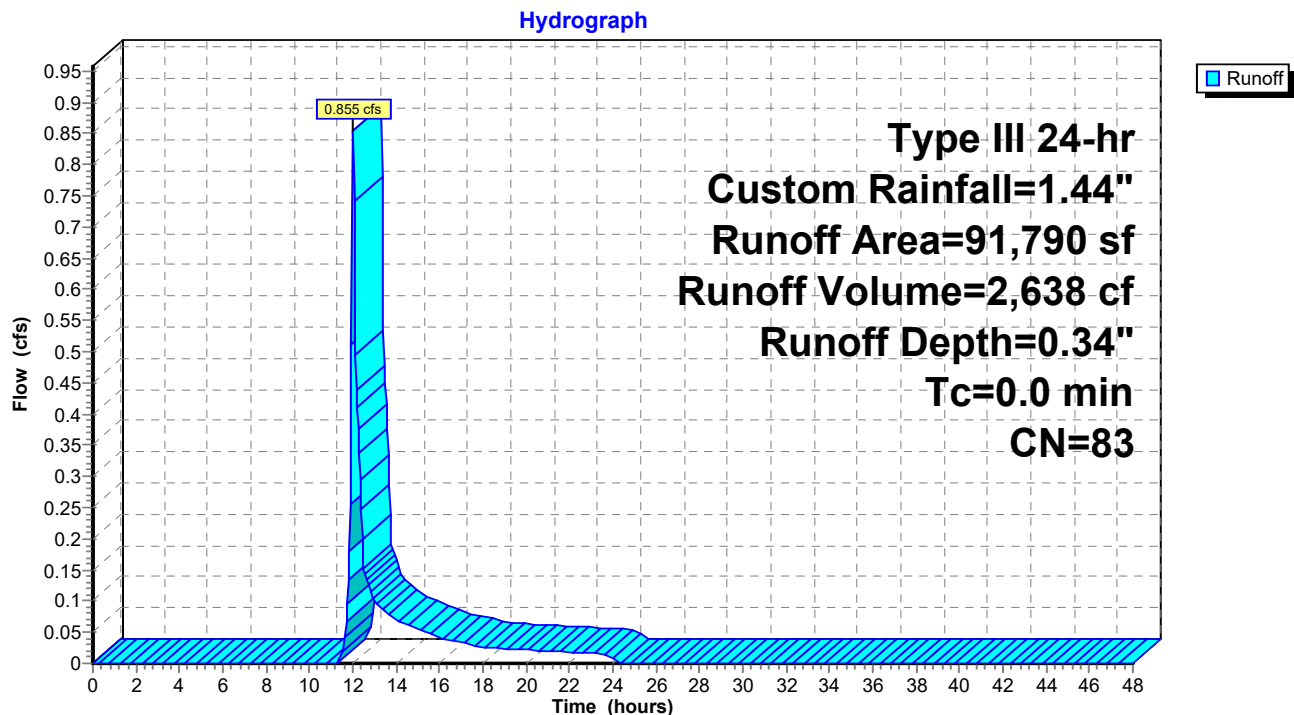
Summary for Subcatchment 8S: Western and Southern Edges of Site

Runoff = 0.855 cfs @ 12.01 hrs, Volume= 2,638 cf, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=1.44"

	Area (sf)	CN	Description
*	16,550	98	Impervious
	75,240	80	>75% Grass cover, Good, HSG D
	91,790	83	Weighted Average
	75,240		81.97% Pervious Area
	16,550		18.03% Impervious Area

Subcatchment 8S: Western and Southern Edges of Site



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Type III 24-hr Custom Rainfall=1.44"

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Summary for Pond 1P: R-Tank, StormFilter & OCS

Inflow Area = 272,310 sf, 80.01% Impervious, Inflow Depth = 0.97" for Custom event
 Inflow = 6.644 cfs @ 12.09 hrs, Volume= 21,916 cf
 Outflow = 0.306 cfs @ 13.70 hrs, Volume= 21,800 cf, Atten= 95%, Lag= 96.6 min
 Primary = 0.306 cfs @ 13.70 hrs, Volume= 21,800 cf
 Secondary = 0.000 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 3.20' @ 15.01 hrs Surf.Area= 7,194 sf Storage= 14,842 cf

Flood Elev= 9.42' Surf.Area= 7,194 sf Storage= 30,079 cf

Plug-Flow detention time= 631.3 min calculated for 21,777 cf (99% of inflow)

Center-of-Mass det. time= 628.8 min (1,426.7 - 797.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.71'	5,213 cf	Stone Envelope (Prismatic) Listed below (Recalc) 39,207 cf Overall - 26,174 cf Embedded = 13,033 cf x 40.0% Voids
#2	0.96'	24,866 cf	R-Tank Triple Modules (Prismatic) Listed below (Recalc) Inside #1 26,174 cf Overall x 95.0% Voids
30,079 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.71	7,194	0	0
6.16	7,194	39,207	39,207

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.96	6,232	0	0
5.16	6,232	26,174	26,174

Device	Routing	Invert	Outlet Devices
#1	Primary	0.46'	12.0" Round Culvert to DMH4 L= 4.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.46' / 0.44' S= 0.0050 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	0.46'	SF - Tube/Siphon/Float Valve X 28.00 Starts@3.21' Breaks@1.13' 0.504" Diameter, C= 0.600, 0.263" Trickle Diameter
#3	Secondary	0.96'	30.0" Round Bypass Culvert L= 6.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.96' / 0.75' S= 0.0318 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#4	Device 3	3.71'	4.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

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Type III 24-hr Custom Rainfall=1.44"

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Primary OutFlow Max=0.082 cfs @ 13.70 hrs HW=3.15' TW=0.55' (Dynamic Tailwater)

1=Culvert to DMH4 (Passes 0.082 cfs of 4.420 cfs potential flow)

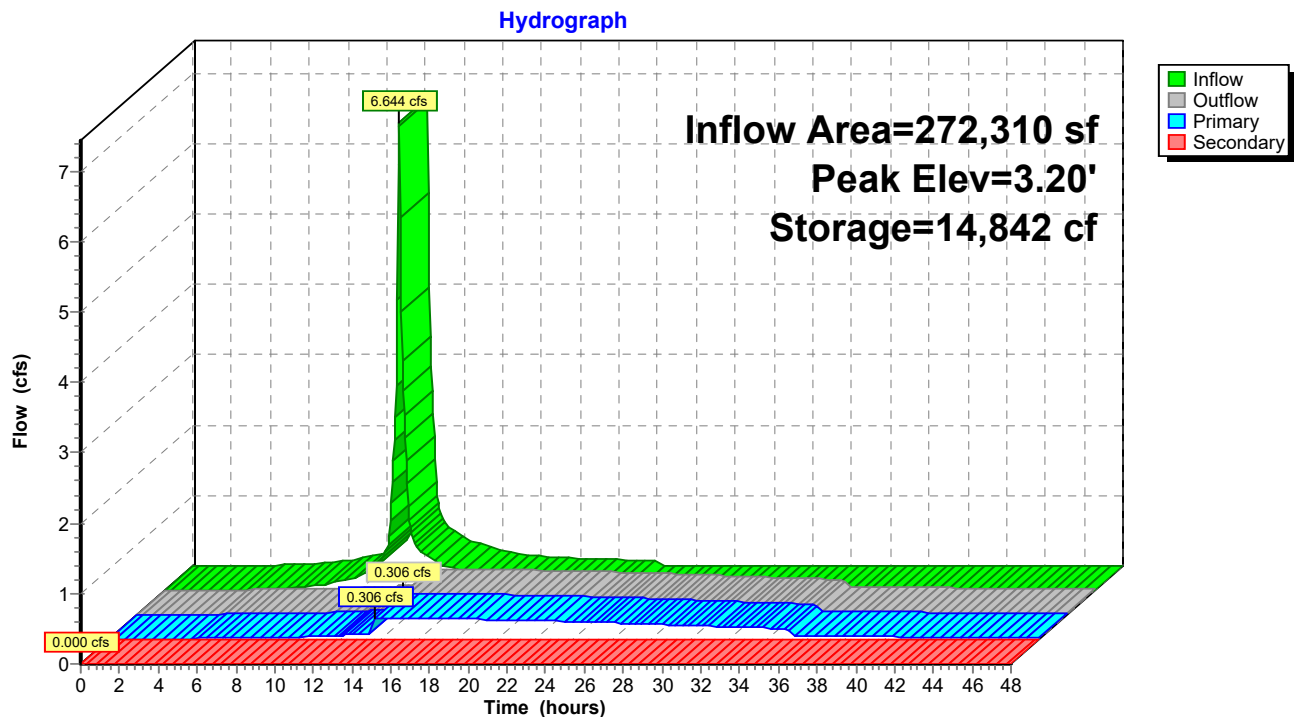
2=SF - Tube/Siphon/Float Valve (Orifice Controls 0.082 cfs @ 7.77 fps)

Secondary OutFlow Max=0.000 cfs @ 0.00 hrs HW=0.71' TW=0.31' (Dynamic Tailwater)

3=Bypass Culvert (Controls 0.000 cfs)

4=Broad-Crested Rectangular Weir (Controls 0.000 cfs)

Pond 1P: R-Tank, StormFilter & OCS



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Type III 24-hr Custom Rainfall=1.44"

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Summary for Pond 2P: DMH-4

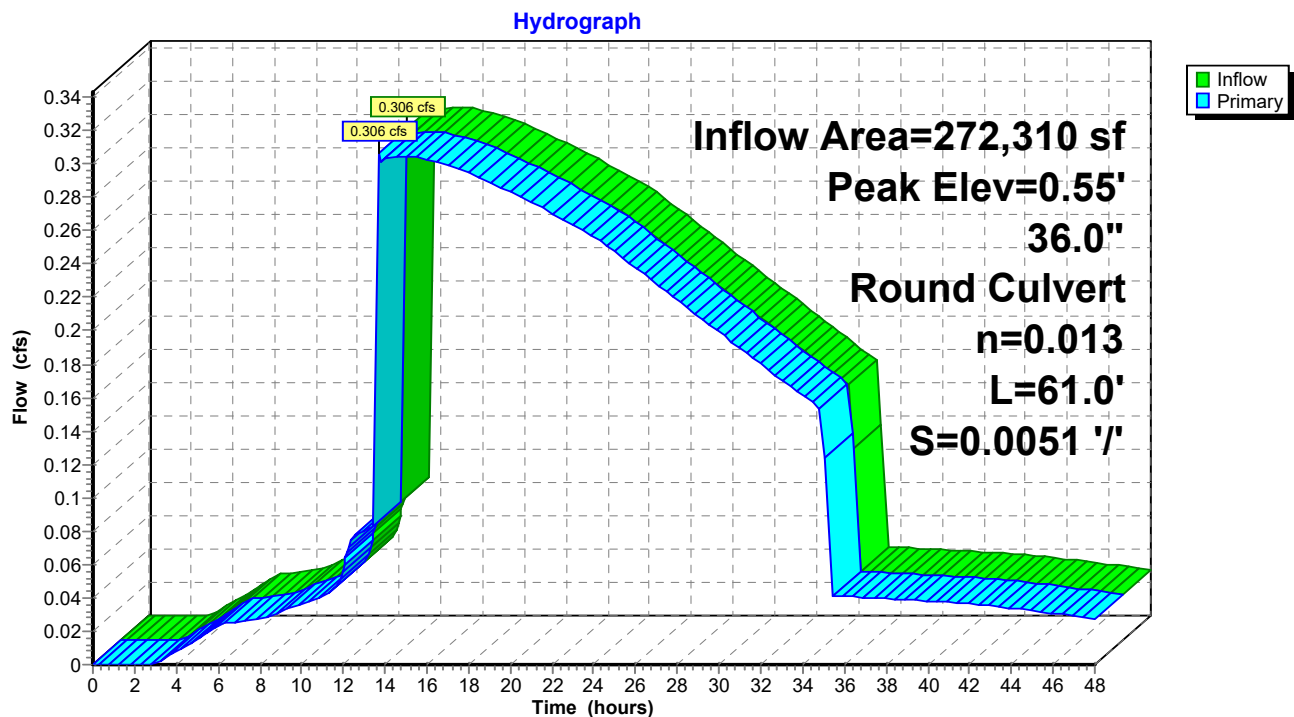
Inflow Area = 272,310 sf, 80.01% Impervious, Inflow Depth > 0.96" for Custom event
Inflow = 0.306 cfs @ 13.70 hrs, Volume= 21,800 cf
Outflow = 0.306 cfs @ 13.70 hrs, Volume= 21,800 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.306 cfs @ 13.70 hrs, Volume= 21,800 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 0.55' @ 13.70 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.31'	36.0" Round Culvert L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.31' / 0.00' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=0.306 cfs @ 13.70 hrs HW=0.55' TW=0.00' (Dynamic Tailwater)
↑ **1=Culvert** (Barrel Controls 0.306 cfs @ 1.81 fps)

Pond 2P: DMH-4



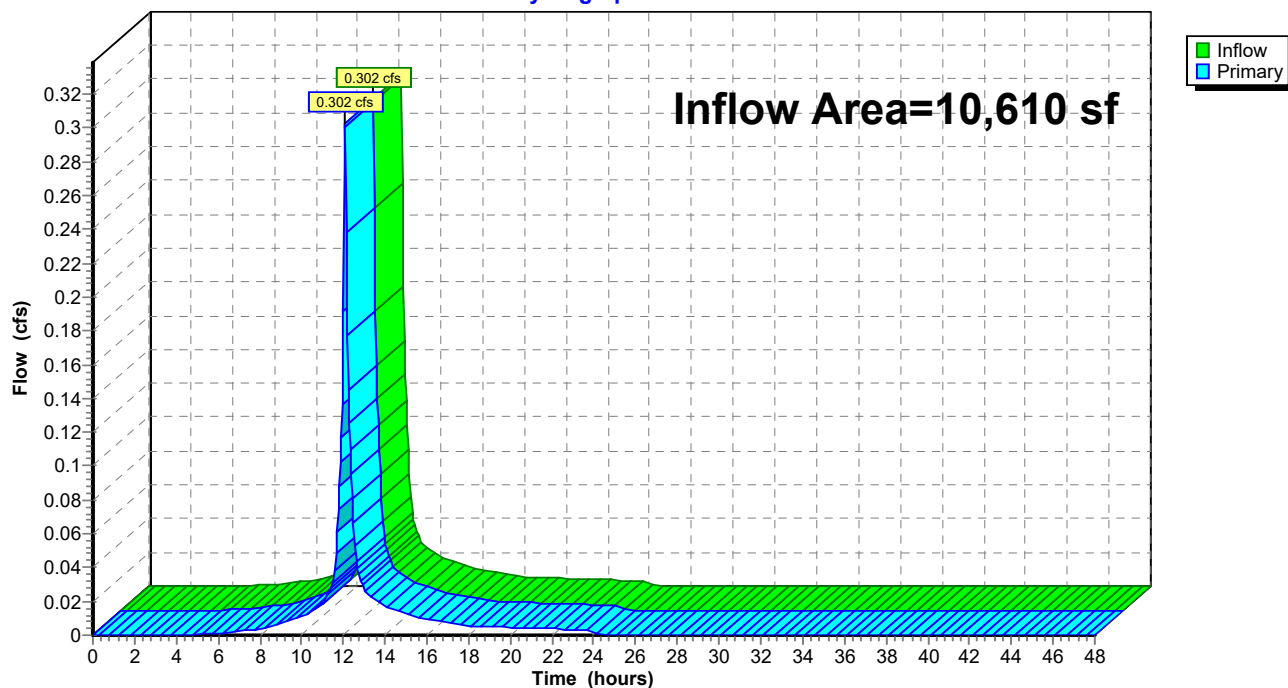
Summary for Link SP1: Commercial St Drainage

Inflow Area = 10,610 sf, 96.56% Impervious, Inflow Depth = 1.13" for Custom event
 Inflow = 0.302 cfs @ 12.09 hrs, Volume= 995 cf
 Primary = 0.302 cfs @ 12.09 hrs, Volume= 995 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link SP1: Commercial St Drainage

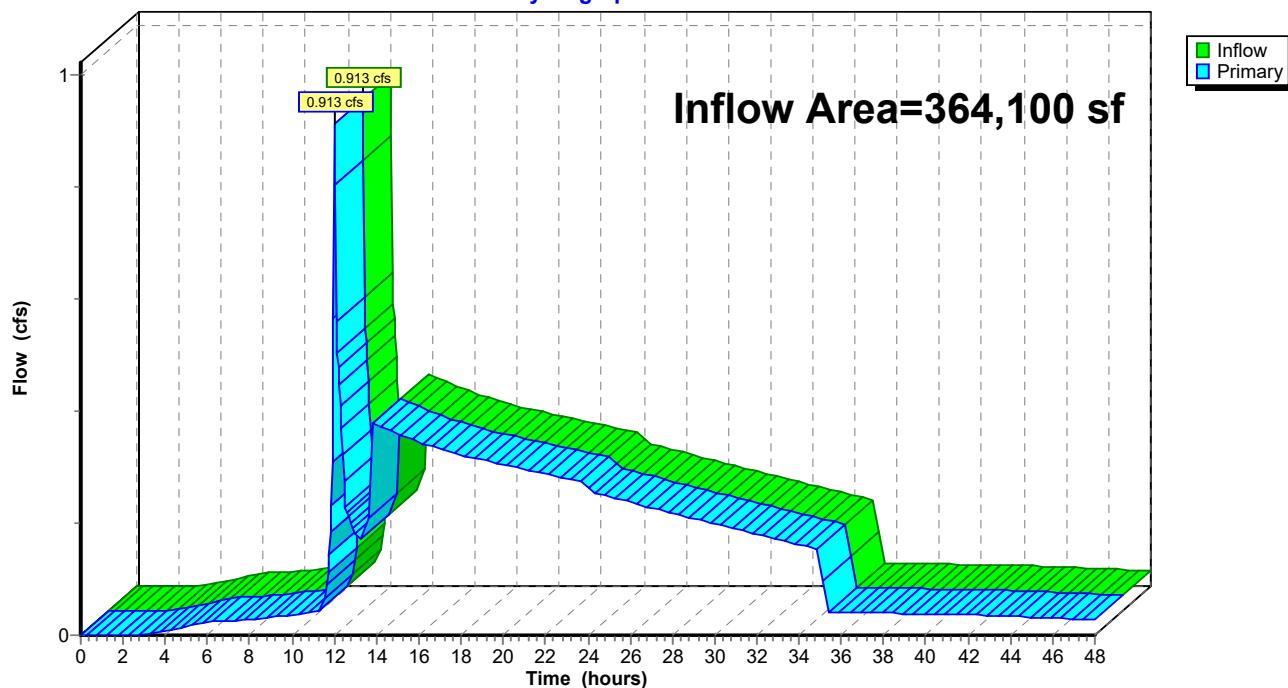
Hydrograph



Summary for Link SP2: Fore River

Inflow Area = 364,100 sf, 64.38% Impervious, Inflow Depth > 0.81" for Custom event
Inflow = 0.913 cfs @ 12.01 hrs, Volume= 24,437 cf
Primary = 0.913 cfs @ 12.01 hrs, Volume= 24,437 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link SP2: Fore River**Hydrograph**

2020.05.11 Cold Storage Stormwater Analysis

Type III 24-hr WQ Rainfall=1.44"

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Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Driveway Entrance Runoff Area=10,610 sf 96.56% Impervious Runoff Depth=1.13"
Tc=6.0 min CN=97 Runoff=0.302 cfs 995 cf

Subcatchment2S: Employee Parking Lot Runoff Area=29,580 sf 49.63% Impervious Runoff Depth=0.59"
Tc=6.0 min CN=89 Runoff=0.450 cfs 1,444 cf

Subcatchment3S: Eastern Parking Lot Runoff Area=107,665 sf 82.18% Impervious Runoff Depth=0.96"
Tc=6.0 min CN=95 Runoff=2.691 cfs 8,589 cf

Subcatchment4S: Office Building Roof Runoff Area=17,085 sf 100.00% Impervious Runoff Depth=1.22"
Tc=6.0 min CN=98 Runoff=0.514 cfs 1,739 cf

Subcatchment5S: Warehouse Building Runoff Area=32,430 sf 100.00% Impervious Runoff Depth=1.22"
Tc=6.0 min CN=98 Runoff=0.975 cfs 3,300 cf

Subcatchment6S: Warehouse Building Runoff Area=57,870 sf 100.00% Impervious Runoff Depth=1.22"
Tc=6.0 min CN=98 Runoff=1.739 cfs 5,889 cf

Subcatchment7S: Area South of Building Runoff Area=27,680 sf 26.50% Impervious Runoff Depth=0.41"
Tc=6.0 min CN=85 Runoff=0.280 cfs 956 cf

Subcatchment8S: Western and Southern Runoff Area=91,790 sf 18.03% Impervious Runoff Depth=0.34"
Tc=0.0 min CN=83 Runoff=0.855 cfs 2,638 cf

Pond 1P: R-Tank, StormFilter & OCS Peak Elev=3.20' Storage=14,842 cf Inflow=6.644 cfs 21,916 cf
Primary=0.306 cfs 21,800 cf Secondary=0.000 cfs 0 cf Outflow=0.306 cfs 21,800 cf

Pond 2P: DMH-4 Peak Elev=0.55' Inflow=0.306 cfs 21,800 cf
36.0" Round Culvert n=0.013 L=61.0' S=0.0051 ' /' Outflow=0.306 cfs 21,800 cf

Link SP1: Commercial St Drainage Inflow=0.302 cfs 995 cf
Primary=0.302 cfs 995 cf

Link SP2: Fore River Inflow=0.913 cfs 24,437 cf
Primary=0.913 cfs 24,437 cf

Total Runoff Area = 374,710 sf Runoff Volume = 25,549 cf Average Runoff Depth = 0.82"
34.70% Pervious = 130,040 sf 65.30% Impervious = 244,670 sf

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Type III 24-hr WQ Rainfall=1.44"

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Summary for Subcatchment 1S: Driveway Entrance

Runoff = 0.302 cfs @ 12.09 hrs, Volume= 995 cf, Depth= 1.13"

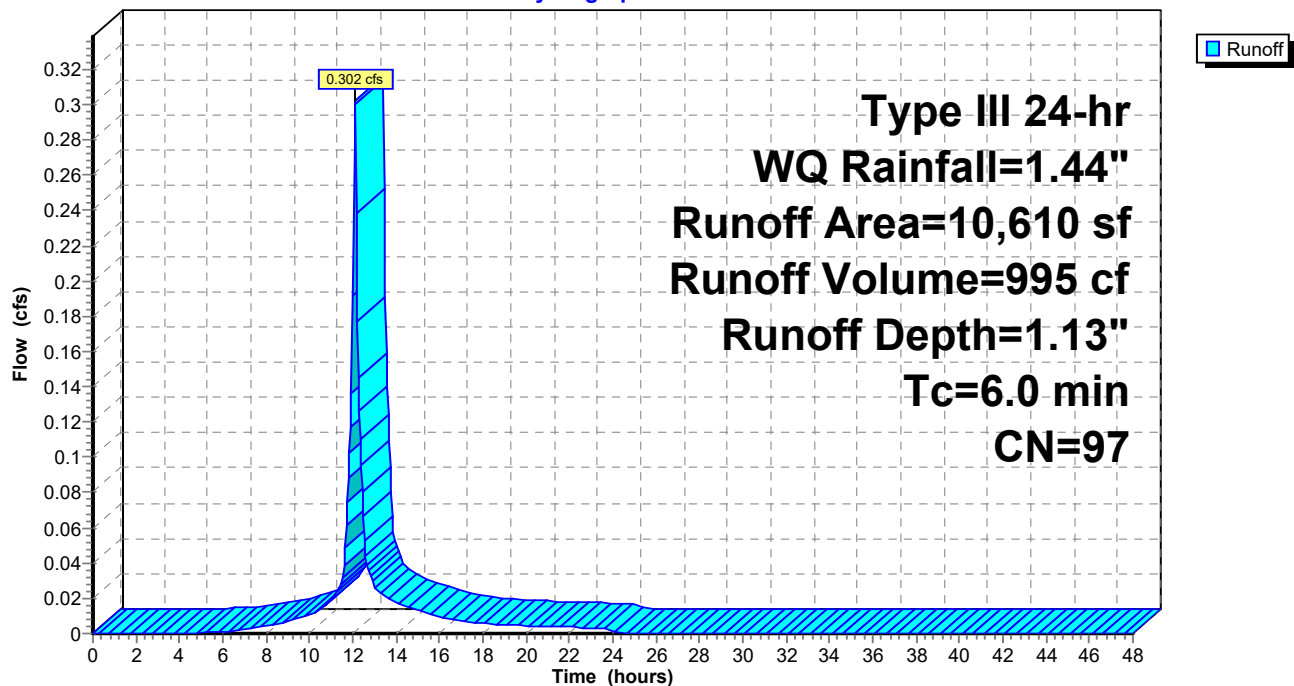
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.44"

	Area (sf)	CN	Description
*	10,245	98	Impervious
	365	80	>75% Grass cover, Good, HSG D
	10,610	97	Weighted Average
	365		3.44% Pervious Area
	10,245		96.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Driveway Entrance

Hydrograph



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Type III 24-hr WQ Rainfall=1.44"

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Summary for Subcatchment 2S: Employee Parking Lot

Runoff = 0.450 cfs @ 12.10 hrs, Volume= 1,444 cf, Depth= 0.59"

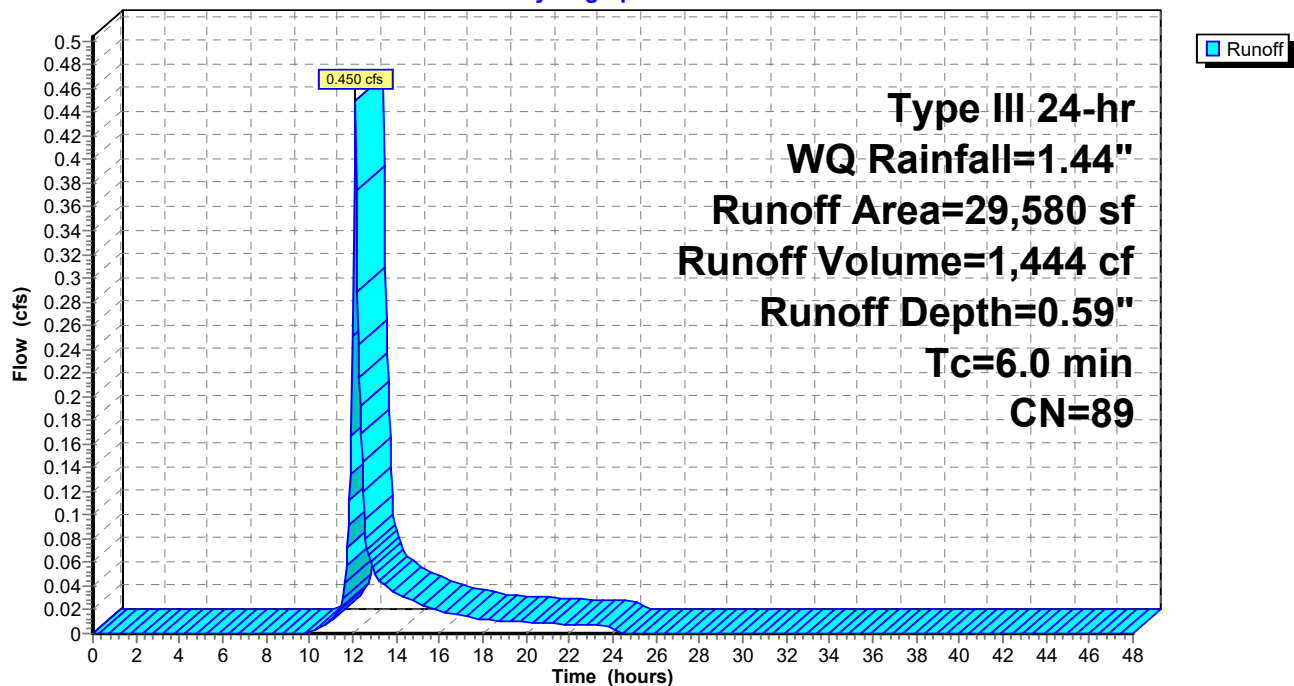
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.44"

	Area (sf)	CN	Description
*	14,680	98	Impervious
	14,900	80	>75% Grass cover, Good, HSG D
	29,580	89	Weighted Average
	14,900		50.37% Pervious Area
	14,680		49.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: Employee Parking Lot

Hydrograph



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Type III 24-hr WQ Rainfall=1.44"

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Summary for Subcatchment 3S: Eastern Parking Lot and Loading Zone

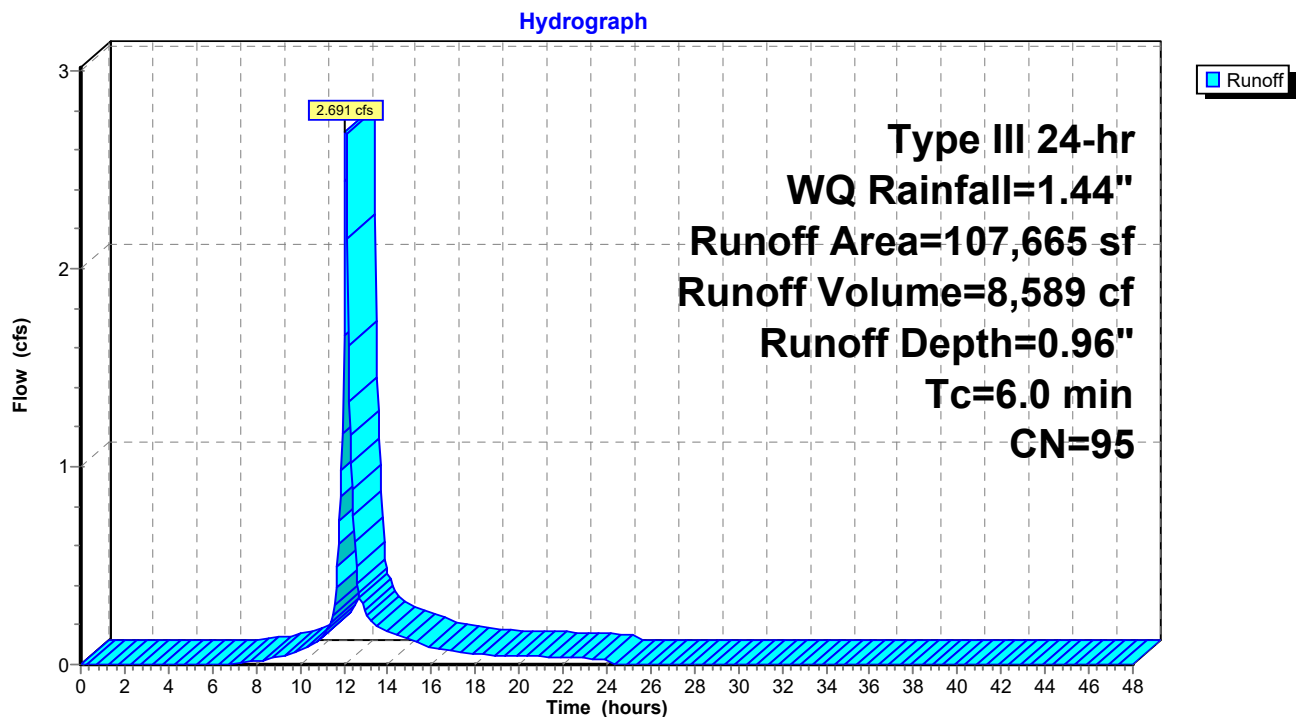
Runoff = 2.691 cfs @ 12.09 hrs, Volume= 8,589 cf, Depth= 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.44"

	Area (sf)	CN	Description
*	88,475	98	Impervious
	19,190	80	>75% Grass cover, Good, HSG D
	107,665	95	Weighted Average
	19,190		17.82% Pervious Area
	88,475		82.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 3S: Eastern Parking Lot and Loading Zone



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Type III 24-hr WQ Rainfall=1.44"

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Summary for Subcatchment 4S: Office Building Roof

Runoff = 0.514 cfs @ 12.09 hrs, Volume= 1,739 cf, Depth= 1.22"

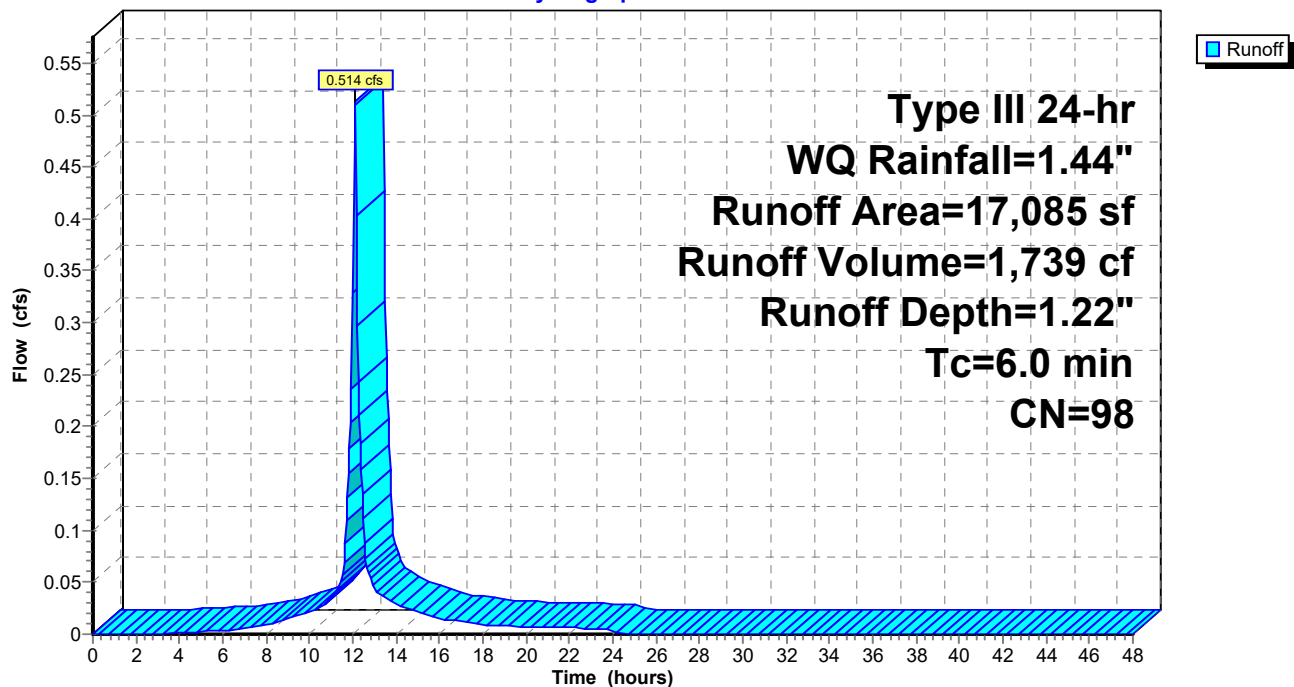
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.44"

	Area (sf)	CN	Description
*	17,085	98	Impervious
	17,085		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 4S: Office Building Roof

Hydrograph



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Type III 24-hr WQ Rainfall=1.44"

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Summary for Subcatchment 5S: Warehouse Building Roof - West

Runoff = 0.975 cfs @ 12.09 hrs, Volume= 3,300 cf, Depth= 1.22"

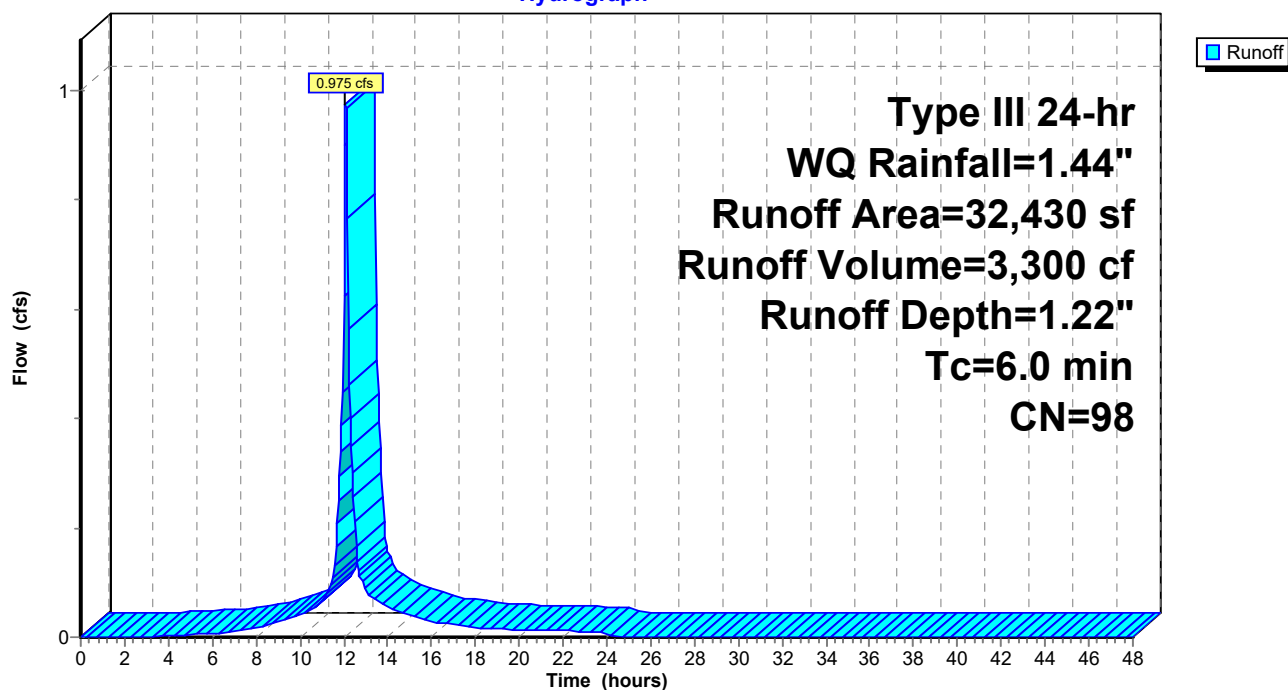
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.44"

	Area (sf)	CN	Description
*	32,430	98	Impervious
	32,430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 5S: Warehouse Building Roof - West

Hydrograph



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Type III 24-hr WQ Rainfall=1.44"

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Summary for Subcatchment 6S: Warehouse Building Roof - East

Runoff = 1.739 cfs @ 12.09 hrs, Volume= 5,889 cf, Depth= 1.22"

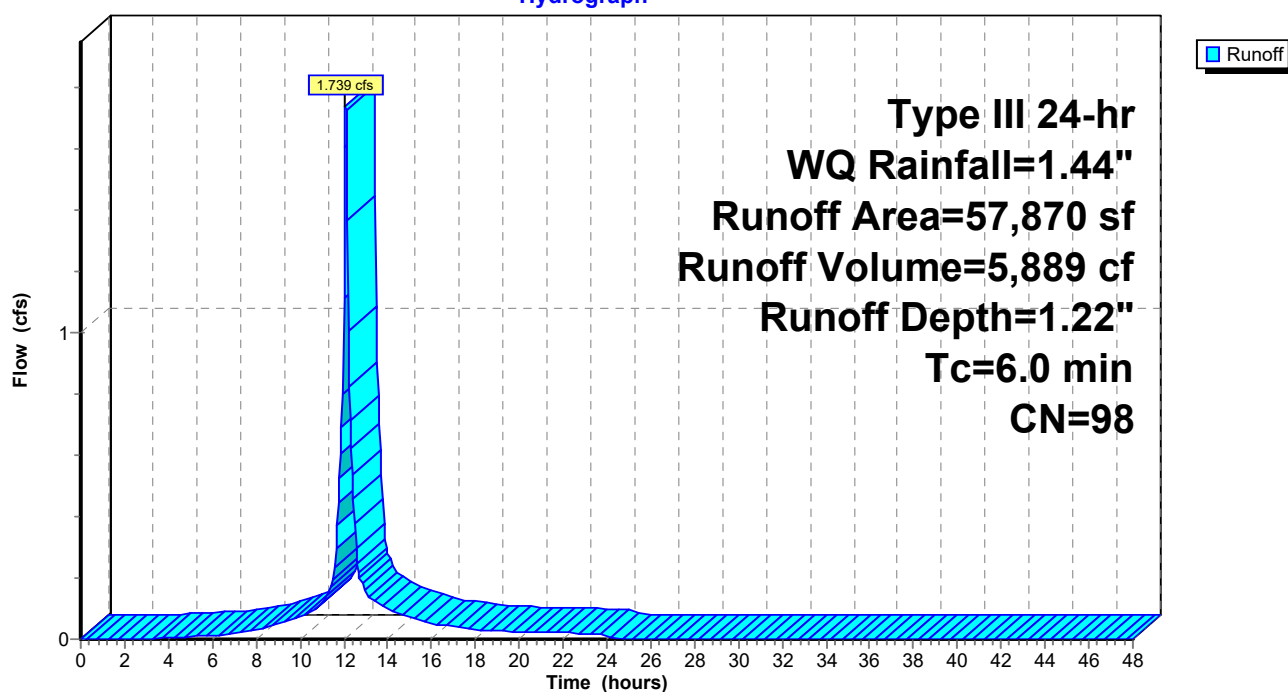
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.44"

	Area (sf)	CN	Description
*	57,870	98	Impervious
	57,870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 6S: Warehouse Building Roof - East

Hydrograph



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Type III 24-hr WQ Rainfall=1.44"

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Summary for Subcatchment 7S: Area South of Building

Runoff = 0.280 cfs @ 12.10 hrs, Volume= 956 cf, Depth= 0.41"

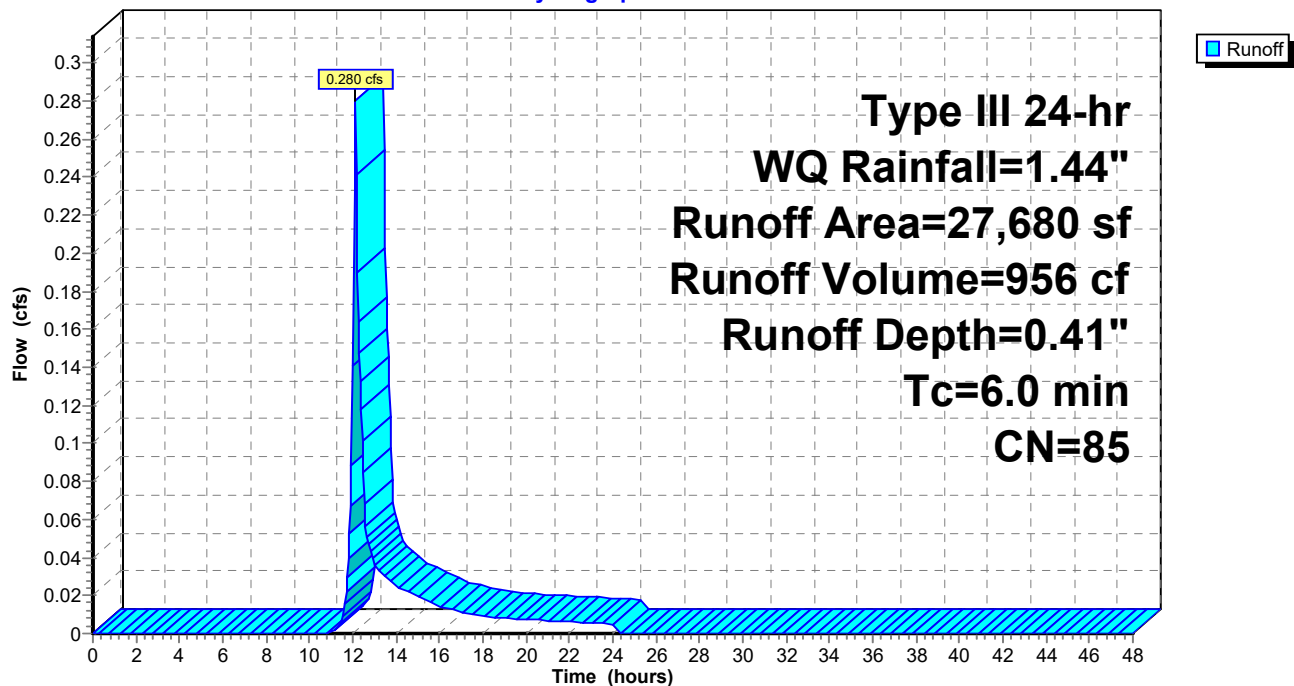
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.44"

	Area (sf)	CN	Description
*	7,335	98	Impervious
	20,345	80	>75% Grass cover, Good, HSG D
	27,680	85	Weighted Average
	20,345		73.50% Pervious Area
	7,335		26.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 7S: Area South of Building

Hydrograph



2020.05.11 Cold Storage Stormwater Analysis

Prepared by Woodard Curran

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Type III 24-hr WQ Rainfall=1.44"

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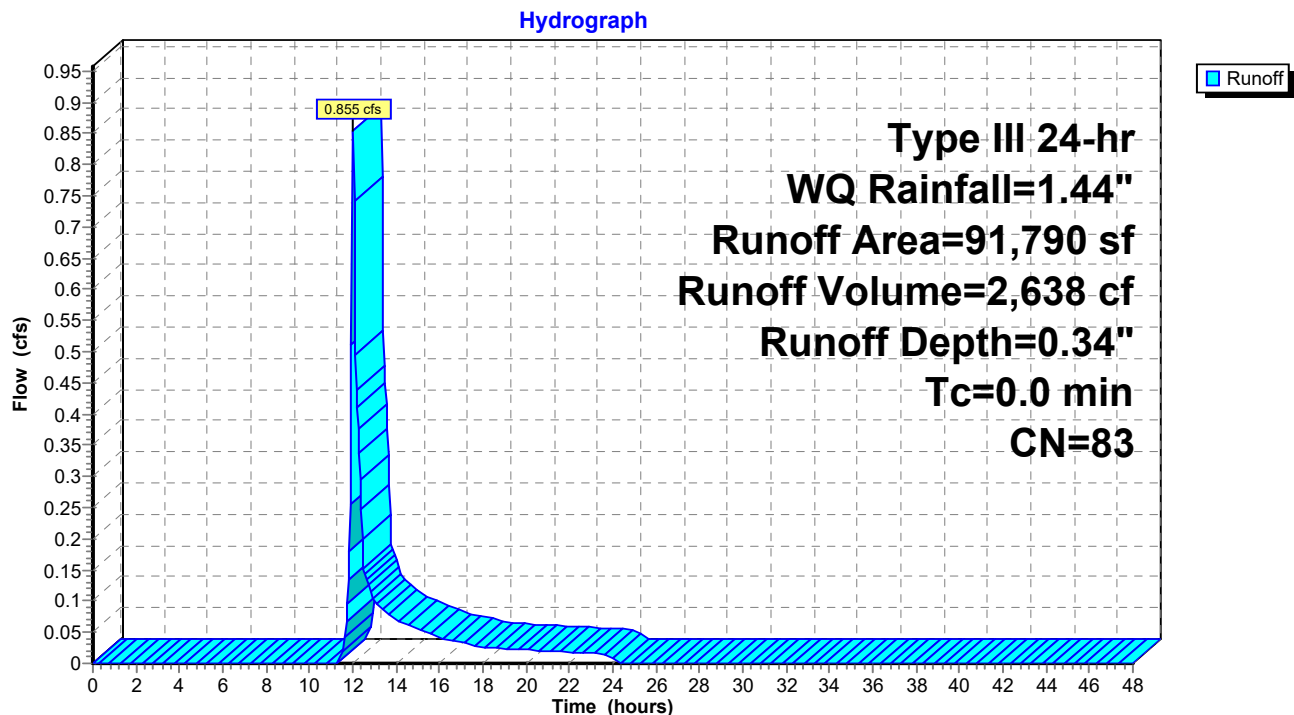
Summary for Subcatchment 8S: Western and Southern Edges of Site

Runoff = 0.855 cfs @ 12.01 hrs, Volume= 2,638 cf, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.44"

	Area (sf)	CN	Description
*	16,550	98	Impervious
	75,240	80	>75% Grass cover, Good, HSG D
	91,790	83	Weighted Average
	75,240		81.97% Pervious Area
	16,550		18.03% Impervious Area

Subcatchment 8S: Western and Southern Edges of Site



2020.05.11 Cold Storage Stormwater Analysis

Type III 24-hr WQ Rainfall=1.44"

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Summary for Pond 1P: R-Tank, StormFilter & OCS

Inflow Area = 272,310 sf, 80.01% Impervious, Inflow Depth = 0.97" for WQ event
 Inflow = 6.644 cfs @ 12.09 hrs, Volume= 21,916 cf
 Outflow = 0.306 cfs @ 13.70 hrs, Volume= 21,800 cf, Atten= 95%, Lag= 96.6 min
 Primary = 0.306 cfs @ 13.70 hrs, Volume= 21,800 cf
 Secondary = 0.000 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 3.20' @ 15.01 hrs Surf.Area= 7,194 sf Storage= 14,842 cf

Flood Elev= 9.42' Surf.Area= 7,194 sf Storage= 30,079 cf

Plug-Flow detention time= 631.3 min calculated for 21,777 cf (99% of inflow)

Center-of-Mass det. time= 628.8 min (1,426.7 - 797.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.71'	5,213 cf	Stone Envelope (Prismatic) Listed below (Recalc) 39,207 cf Overall - 26,174 cf Embedded = 13,033 cf x 40.0% Voids
#2	0.96'	24,866 cf	R-Tank Triple Modules (Prismatic) Listed below (Recalc) Inside #1 26,174 cf Overall x 95.0% Voids
30,079 cf			Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.71	7,194	0	0
6.16	7,194	39,207	39,207

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.96	6,232	0	0
5.16	6,232	26,174	26,174

Device	Routing	Invert	Outlet Devices
#1	Primary	0.46'	12.0" Round Culvert to DMH4 L= 4.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.46' / 0.44' S= 0.0050 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	0.46'	SF - Tube/Siphon/Float Valve X 28.00 Starts@3.21' Breaks@1.13' 0.504" Diameter, C= 0.600, 0.263" Trickle Diameter
#3	Secondary	0.96'	30.0" Round Bypass Culvert L= 6.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.96' / 0.75' S= 0.0318 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#4	Device 3	3.71'	4.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

2020.05.11 Cold Storage Stormwater Analysis

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Type III 24-hr WQ Rainfall=1.44"

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Primary OutFlow Max=0.082 cfs @ 13.70 hrs HW=3.15' TW=0.55' (Dynamic Tailwater)

1=Culvert to DMH4 (Passes 0.082 cfs of 4.420 cfs potential flow)

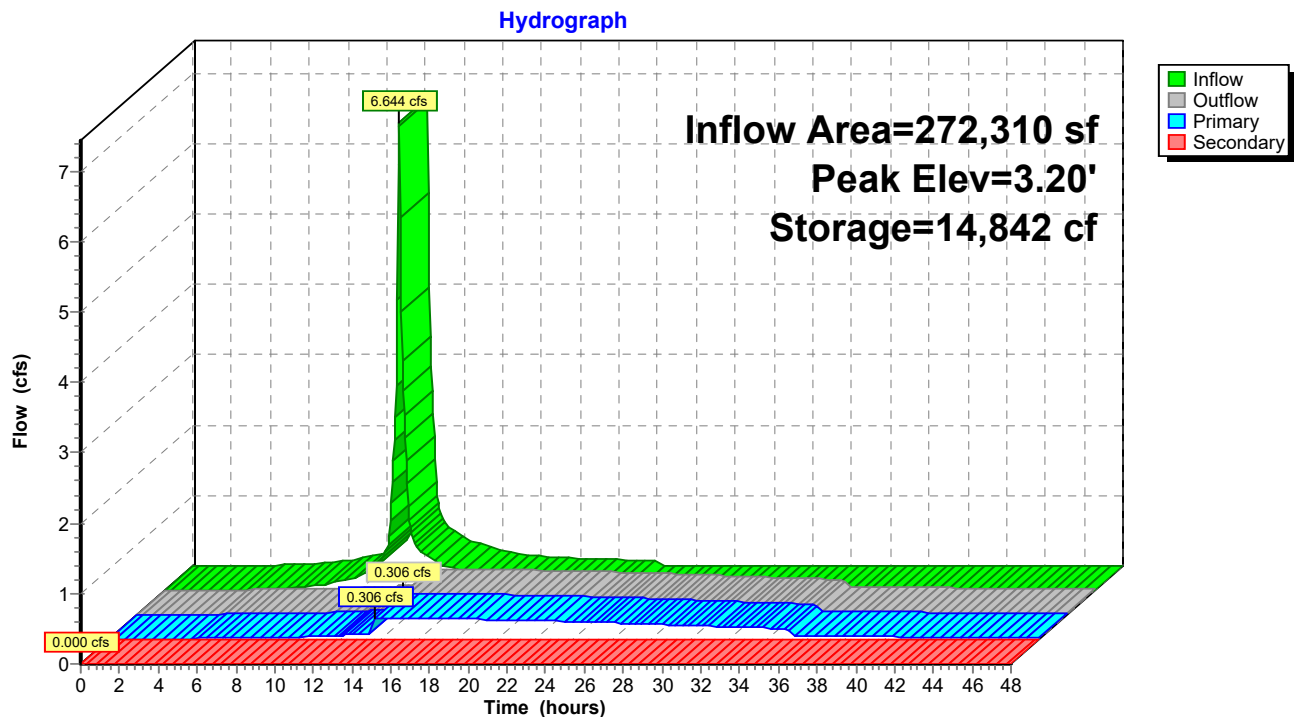
2=SF - Tube/Siphon/Float Valve (Orifice Controls 0.082 cfs @ 7.77 fps)

Secondary OutFlow Max=0.000 cfs @ 0.00 hrs HW=0.71' TW=0.31' (Dynamic Tailwater)

3=Bypass Culvert (Controls 0.000 cfs)

4=Broad-Crested Rectangular Weir (Controls 0.000 cfs)

Pond 1P: R-Tank, StormFilter & OCS



2020.05.11 Cold Storage Stormwater Analysis

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Type III 24-hr WQ Rainfall=1.44"

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Summary for Pond 2P: DMH-4

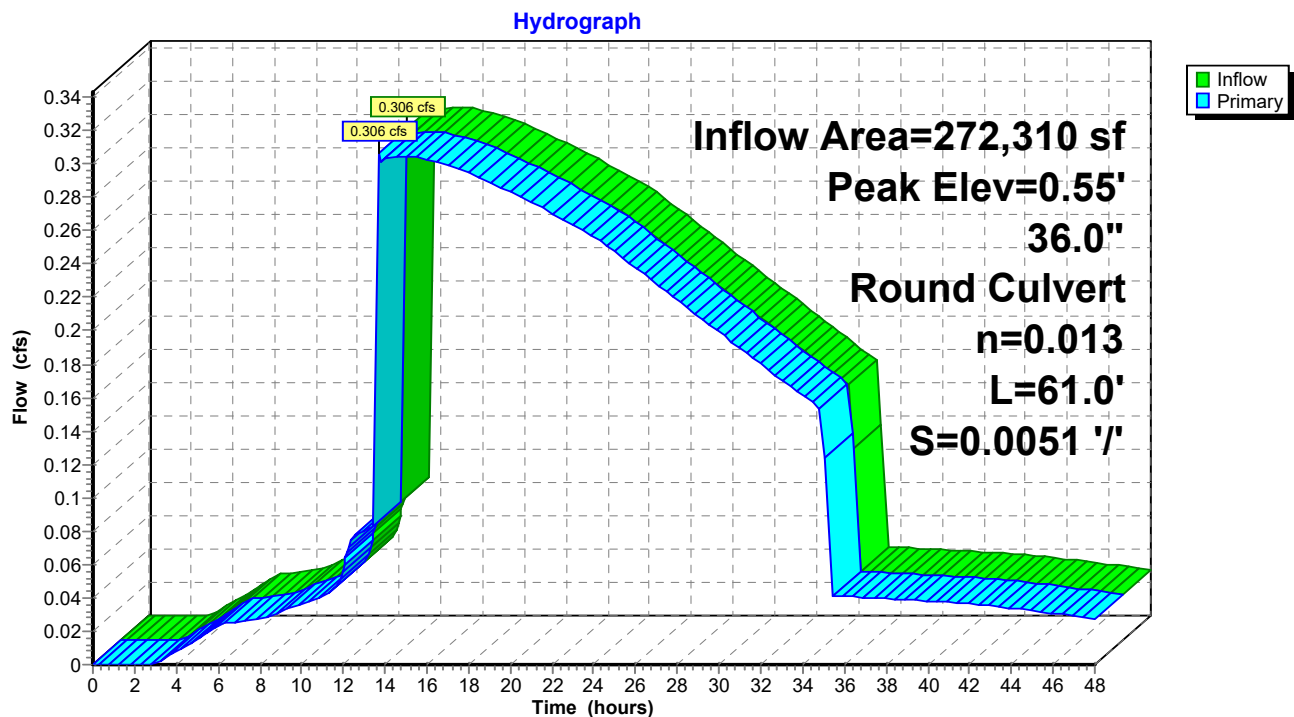
Inflow Area = 272,310 sf, 80.01% Impervious, Inflow Depth > 0.96" for WQ event
Inflow = 0.306 cfs @ 13.70 hrs, Volume= 21,800 cf
Outflow = 0.306 cfs @ 13.70 hrs, Volume= 21,800 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.306 cfs @ 13.70 hrs, Volume= 21,800 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 0.55' @ 13.70 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.31'	36.0" Round Culvert L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.31' / 0.00' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=0.306 cfs @ 13.70 hrs HW=0.55' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.306 cfs @ 1.81 fps)

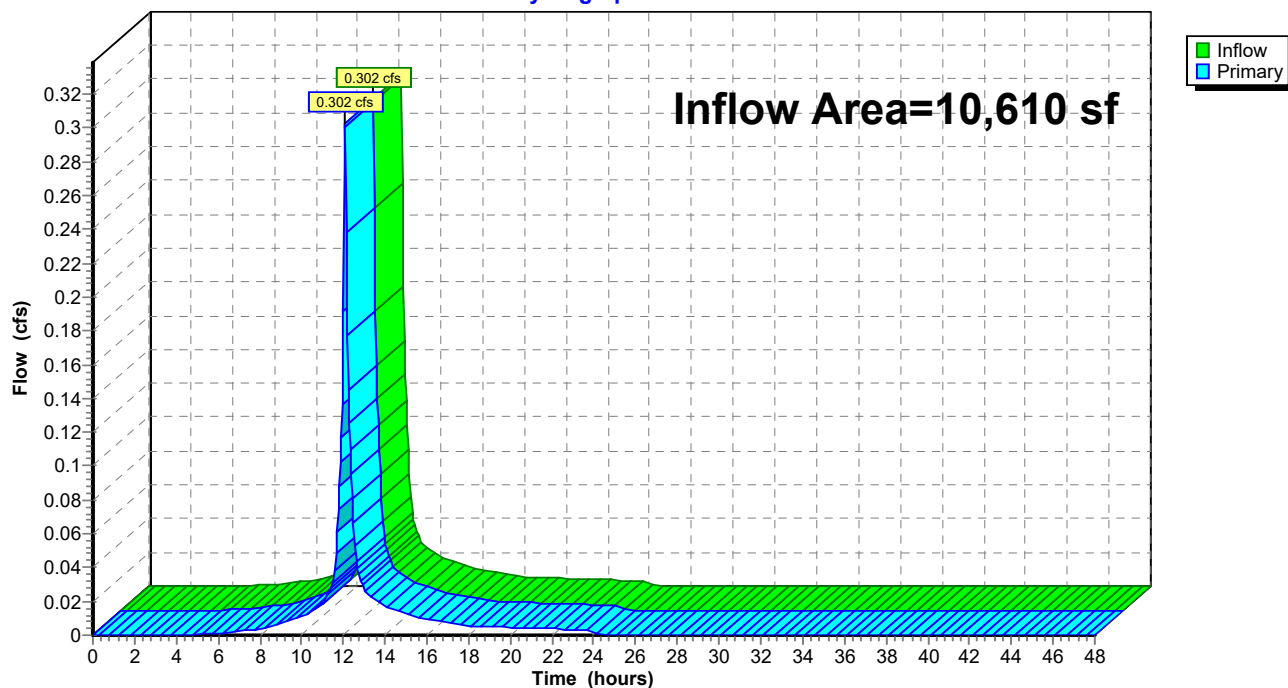
Pond 2P: DMH-4



Summary for Link SP1: Commercial St Drainage

Inflow Area = 10,610 sf, 96.56% Impervious, Inflow Depth = 1.13" for WQ event
Inflow = 0.302 cfs @ 12.09 hrs, Volume= 995 cf
Primary = 0.302 cfs @ 12.09 hrs, Volume= 995 cf, Atten= 0%, Lag= 0.0 min

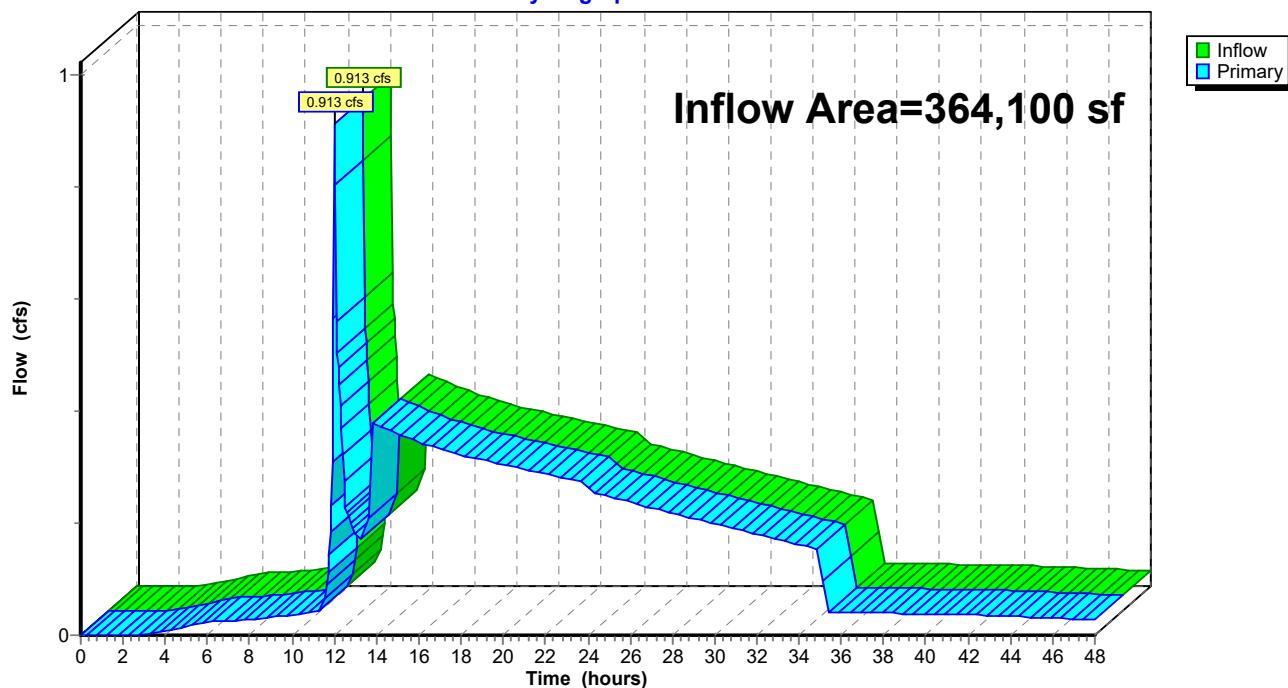
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

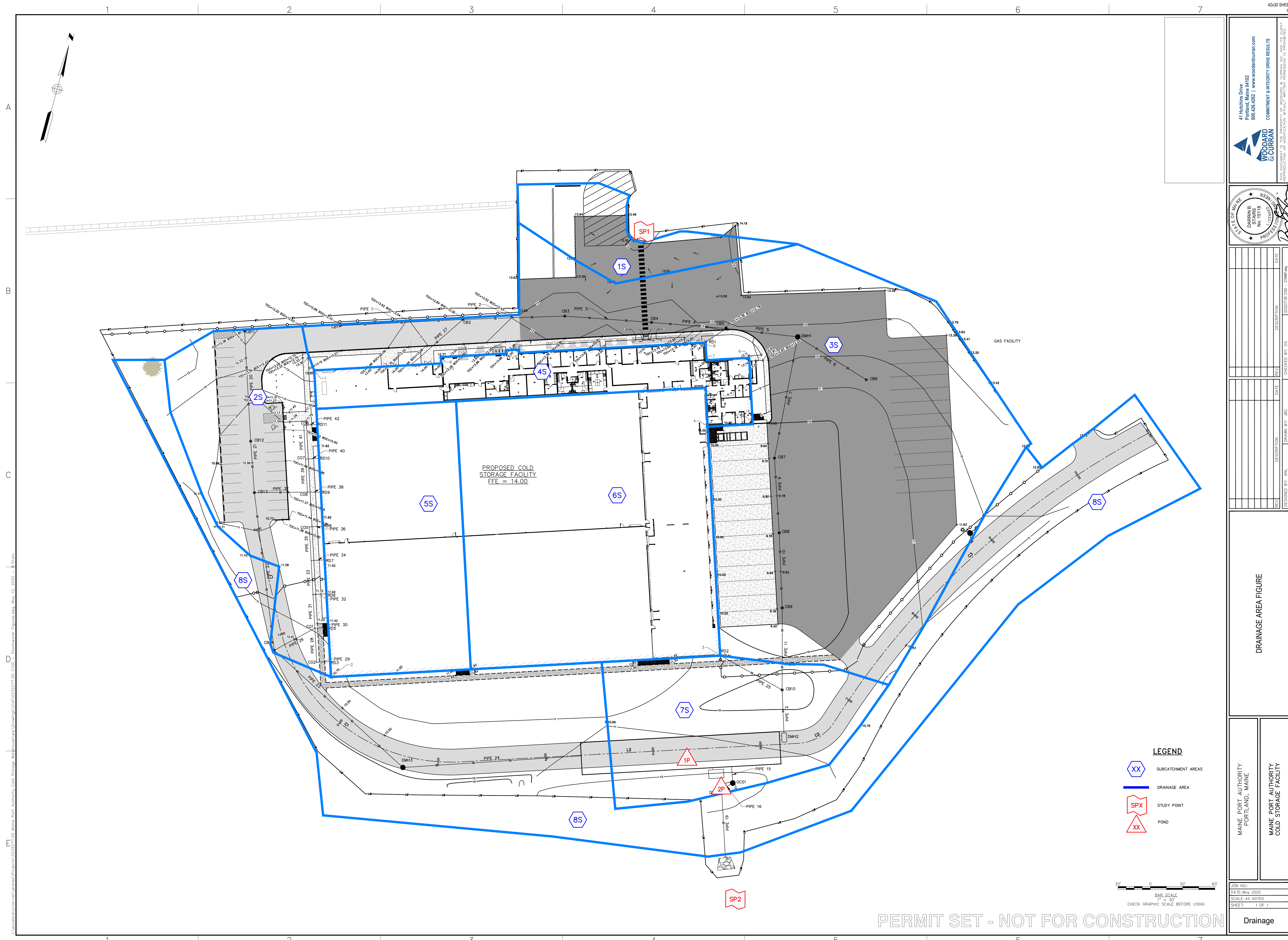
Link SP1: Commercial St Drainage**Hydrograph**

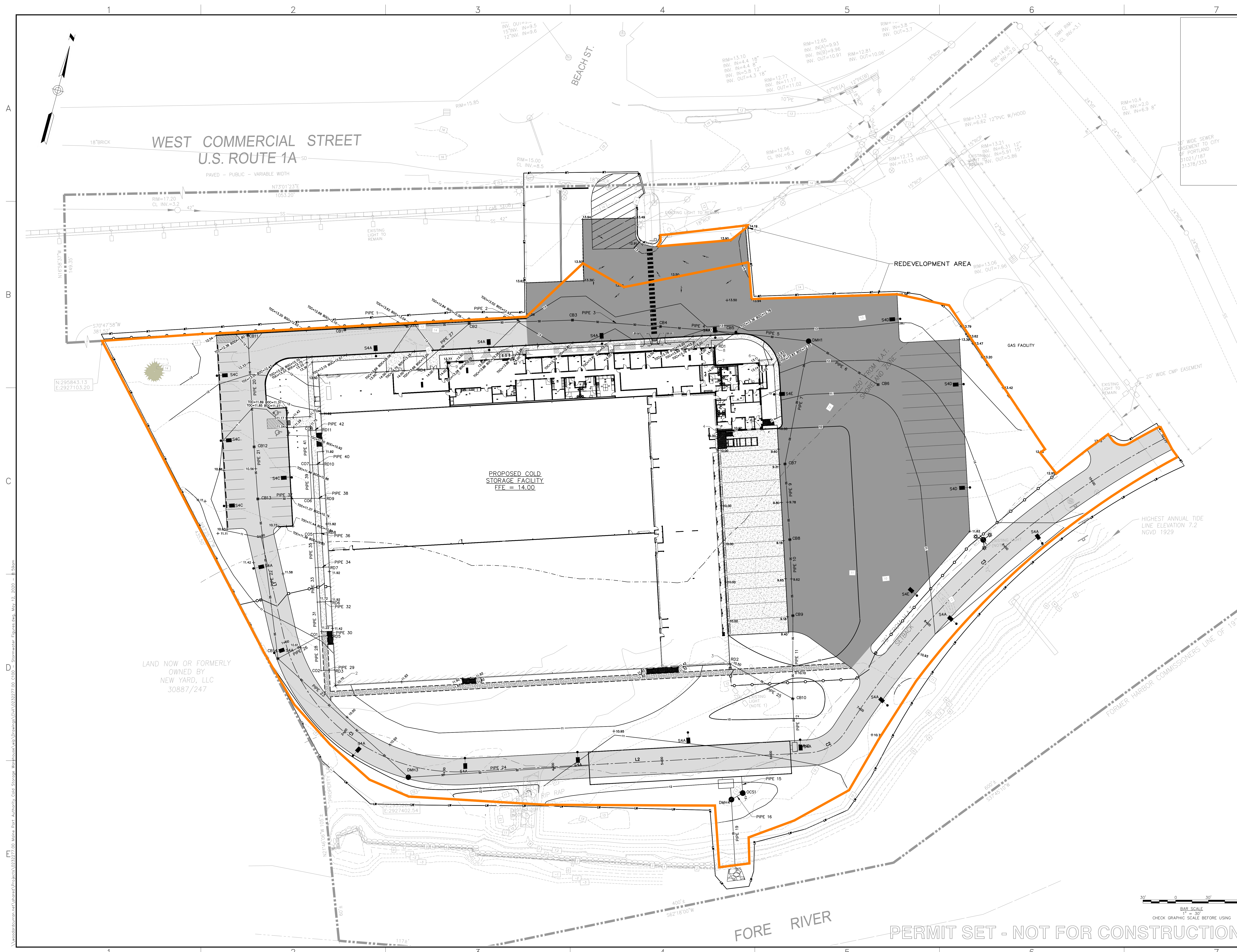
Summary for Link SP2: Fore River

Inflow Area = 364,100 sf, 64.38% Impervious, Inflow Depth > 0.81" for WQ event
Inflow = 0.913 cfs @ 12.01 hrs, Volume= 24,437 cf
Primary = 0.913 cfs @ 12.01 hrs, Volume= 24,437 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link SP2: Fore River**Hydrograph**





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COMMITMENT & INTEGRITY DRIVE RESULTS

MAINE PORT AUTHORITY
PORTLAND, MAINE

MAINE PORT AUTHORITY
COLD STORAGE FACILITY

REDEVELOPMENT FIGURE

DESIGNED BY: ANL
DRAWN BY: BGC
CHECKED BY: DS
DATE: 03/07/20
JOB NO.:
DATE: MAY 2020
SCALE: AS NOTED
SHEET: 1 OF 1

REDEVELOPMENT

\\woodwardcurran.net\Users\Projects\022277.00 Maine Port Authority Cold Storage\Workbooks\Drawings\022277.00 C100 - Stormwater Figures.dwg, May 12, 2020, 8:55am



TRIP GENERATION ANALYSIS PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY PORTLAND, MAINE

INTRODUCTION

Trip generation analysis has been performed for the proposed Maine International Cold Storage Facility to be located adjacent to the International Marine Terminal (IMT) in Portland, Maine. The proposed facility will be 108,000 square feet (S.F.) in size. The facility is expected to employ a maximum of 25 employees, which will be spread over at least two shifts. Access to the facility will be provided by a single full movement signalized drive to Commercial Street, directly opposite Beach Street, and by an internal connection to the IMT. The facility is projected to generate a maximum of 70 trucks per day or 140 one-way truck trips. The majority of these truck trips (75 %) are expected to occur between 6:00 AM and 12:00 noon with the remaining 25 % occurring in the afternoon. It is expected that the facility will reduce off-site truck trips from the adjacent IMT since there is no available cold storage at the IMT now.

The City of Portland has requested that the trip generation analysis also look at the adjacent IMT trips to determine if a Traffic Movement Permit (TMP) will be required under Common Scheme of Development rules.

TRIP GENERATION ANALYSIS

The number of trips to be generated by the proposed storage facility was estimated using the most recent Institute of Transportation Engineers (ITE) "Trip Generation, 10th Edition" report. The calculations were performed utilizing Land Use Code 150 - Warehousing on the basis of both employees and square footage. The results on the basis of 108,000 S.F. and 25 employees are summarized in the table below:

<u>Time Period</u>	10th Edition ITE (one-way trip ends)		
	<u>Emp.</u>	<u>S.F.</u>	<u>Average</u>
Weekday	126	188	158
AM Peak Hour – Adjacent Street	15	18	17
AM Peak Hour – Generator	17	24	21
PM Peak Hour – Adjacent Street	17	21	19
PM Peak Hour – Generator	17	26	22

As seen in the preceding table, the employee and square footage bases yielded quite similar results so they were averaged to best estimate expected site trips.

SITE SPECIFIC ESTIMATES

Given the availability of specific truck and employee numbers, trip generation was also estimated specific to this site. The facility expects 53 trucks from 6:00 AM to noon, or 9 per hour. To allow for some peaking within that period, 12 trucks are assumed for this analysis, equal to 24 one-way truck trips. The ITE estimates on an employee basis appear reasonable for the facility even though those numbers would have included some trucks. Assuming 15 employee trips and 24 truck trips gives us an AM peak hour estimate of 39 one-way trips. Only 17 trucks are anticipated in the afternoon period, from noon to 6:00 PM, which equates to approximately 3 trucks per hour. To allow for peaking within this slower period, 6 trucks are assumed during the PM peak hour with 15 employee trips for 21 PM peak hour trips. This PM estimate is virtually identical to the ITE result of 22, which will be utilized for the remainder of this analysis to be conservative.

PERMITTING REQUIREMENTS

The trips must be converted to passenger car equivalents (PCEs) to determine if a Traffic Movement Permit (TMP) is required under state law. For these calculations, each truck trip equals two PCEs. The peak hour calculations are as follows:

AM Peak Hour – 24 trucks x 2.0 PCEs = 48 PCEs + 15 employee PCEs = 63 PCEs

PM Peak Hour – 7 trucks X 2.0 PCEs = 14 PCEs + 15 employee PCEs = 29 PCEs

Based upon these results, expected to be conservative, a TMP would not be required for the Cold Storage facility since peak hour trip generation will not exceed the 100-trip threshold, defined in terms of PCEs. However, the City of Portland has requested that trips generated by the adjacent IMT also be considered.

IMT TRIP GENERATION

Trips to and from the IMT were recorded in turning movement and classification counts performed in 2019 by Gorrill Palmer and Traffic Solutions. These counts were conducted as follows:

<u>Intersection</u>	<u>Date/Count Period</u>	<u>Peak Hour</u>
W. Commercial St, Beach St. & Site Drive	8/13/2019 7 – 9 AM	7:30 – 8:30 AM
W. Commercial St, Beach St. & Site Drive	8/13/2019 3 – 6 PM	4:45 – 5:45 PM
W. Commercial Street & IMT Drive	11/14/2019 7 – 9 AM	7:30 – 8:30 AM
W. Commercial Street & IMT Drive	11/14/2019 4 – 6 PM	4:30 – 5:30 PM

The count records are attached to this memorandum. The counts were summarized in terms of passenger car equivalents for the AM and PM peak hours of both the adjacent street system and the peak hour of the IMT. The AM results are shown in Figure 1 while the PM results are summarized in Figure 2. As seen in these figures, during the AM peak hour of the IMT it generated 33 PCEs. During the PM peak hour of the IMT it generated 28 PCEs. These trips are added to the projected peak hours for the International Cold Storage Facility as follows:

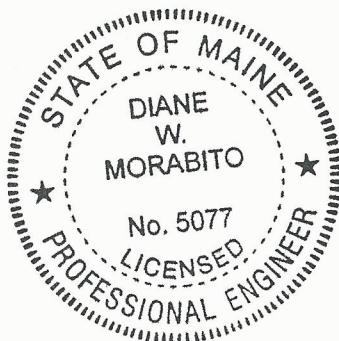
AM Peak Hour – 63 PCEs Cold Storage + 33 PCEs IMT = 96 PCEs

PM Peak Hour – 29 PCEs Cold Storage + 28 PCEs IMT = 57 PCEs

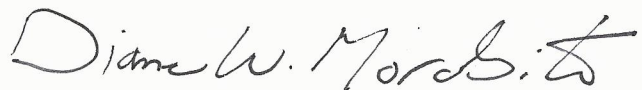
As seen above, the total PCEs for the site after development of the cold storage will be 96 during the AM peak hour and 57 during the PM peak hour. These estimates are expected to be conservative since they are based upon the following assumptions:

- Both the IMT and Cold Storage facilities will peak during the exact same hours of the day
- Both the employee trips and truck trips for the cold storage facility will peak during the same hours
- The cold storage facility is expected to reduce off-site trips from the IMT since there is no cold storage currently available

To summarize, based upon the preceding analysis, assumed to be conservative for the stated reasons, a TMP should not be required for the proposed International Cold Storage Facility, even with consideration of the existing IMT trips.



Sincerely,



Diane W. Morabito, P.E. PTOE
Vice President Traffic Engineering



-- AM Peak Hour Adj. St
(--) AM Peak Hour IMT

AM Peak Hour Adj. St - 7:30-8:30
19 PCEs

AM Peak Hour IMT - 8:00-9:00
33 PCEs

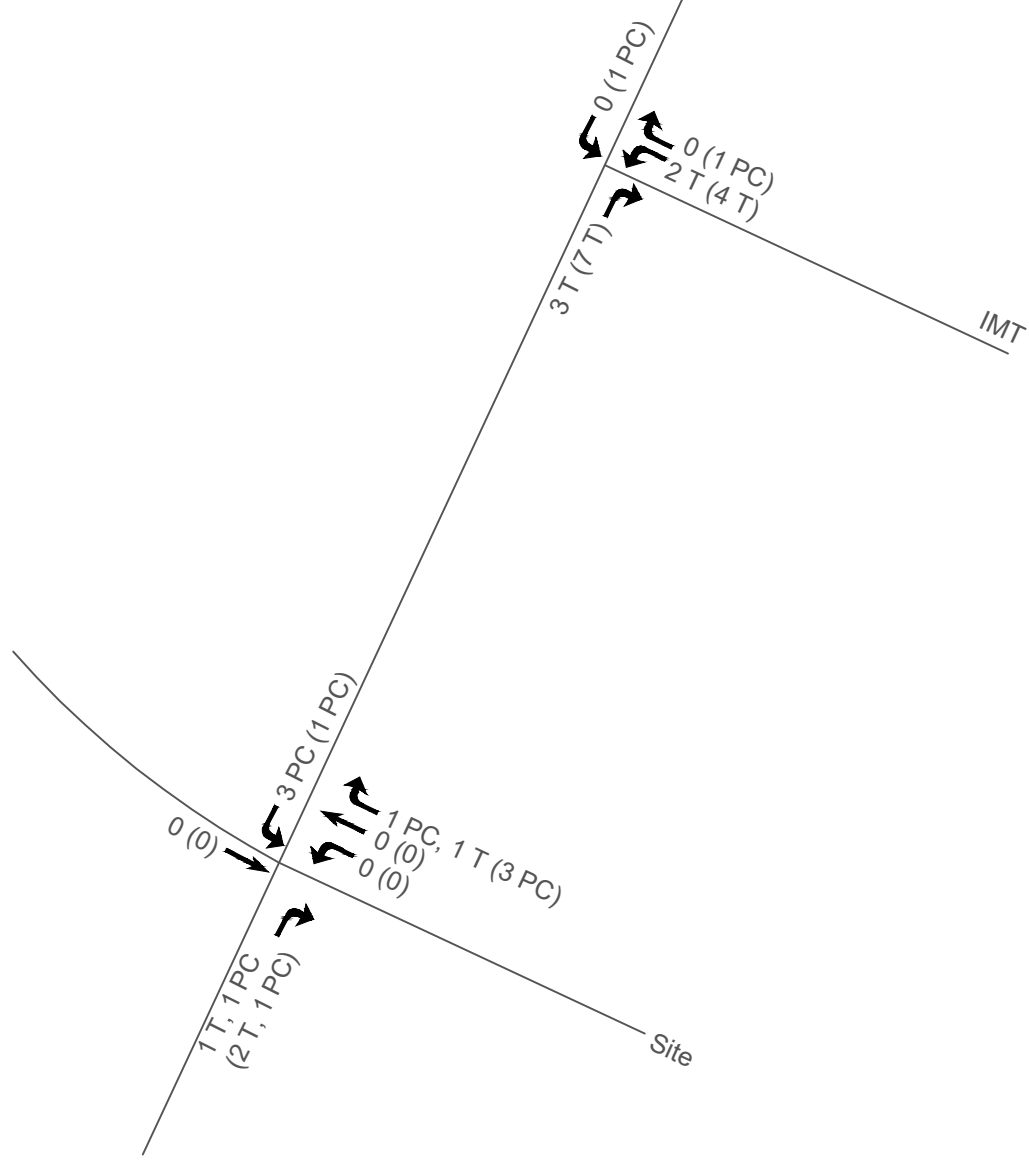


Figure 1

AM IMT Trip Generation
Cold Storage Facility
Portland, Maine





-- PM Peak Hour Adj. St
(--) PM Peak Hour IMT

PM Peak Hour - Adj. St
20 PCEs

PM Peak Hour - IMT
28 PCEs

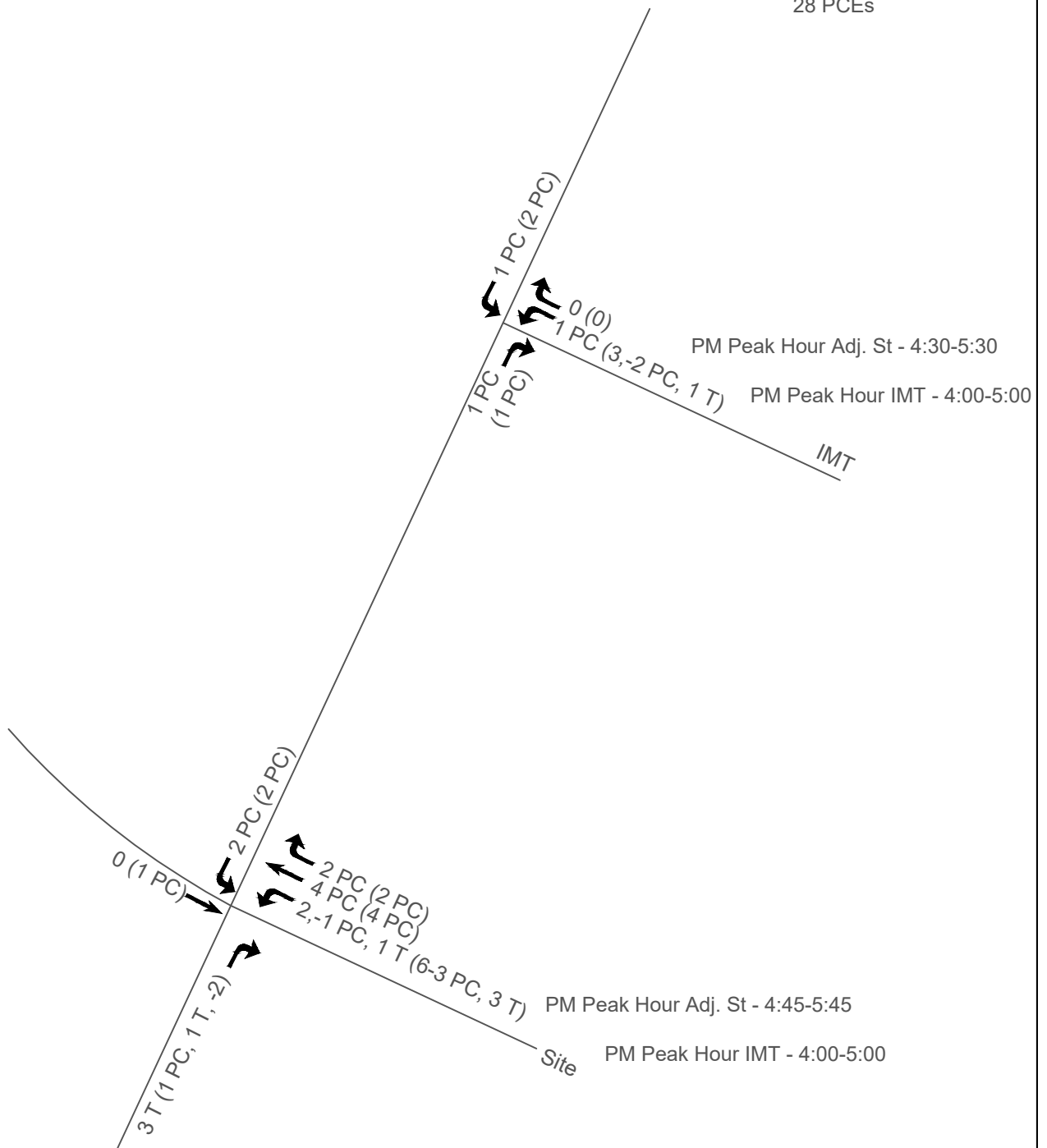


Figure 2

PM IMT Trip Generation
Cold Storage Facility
Portland, Maine

Gorrill Palmer
707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
Engineering Excellence Since 1988

Location: Portland, ME
Counter: TPG
Board: 2
Weather: Clear

File Name : AM IMT
Site Code : 003541
Start Date : 11/14/2019
Page No : 1

Groups Printed- Passenger Cars - Single Unit Trucks - Heavy Trucks

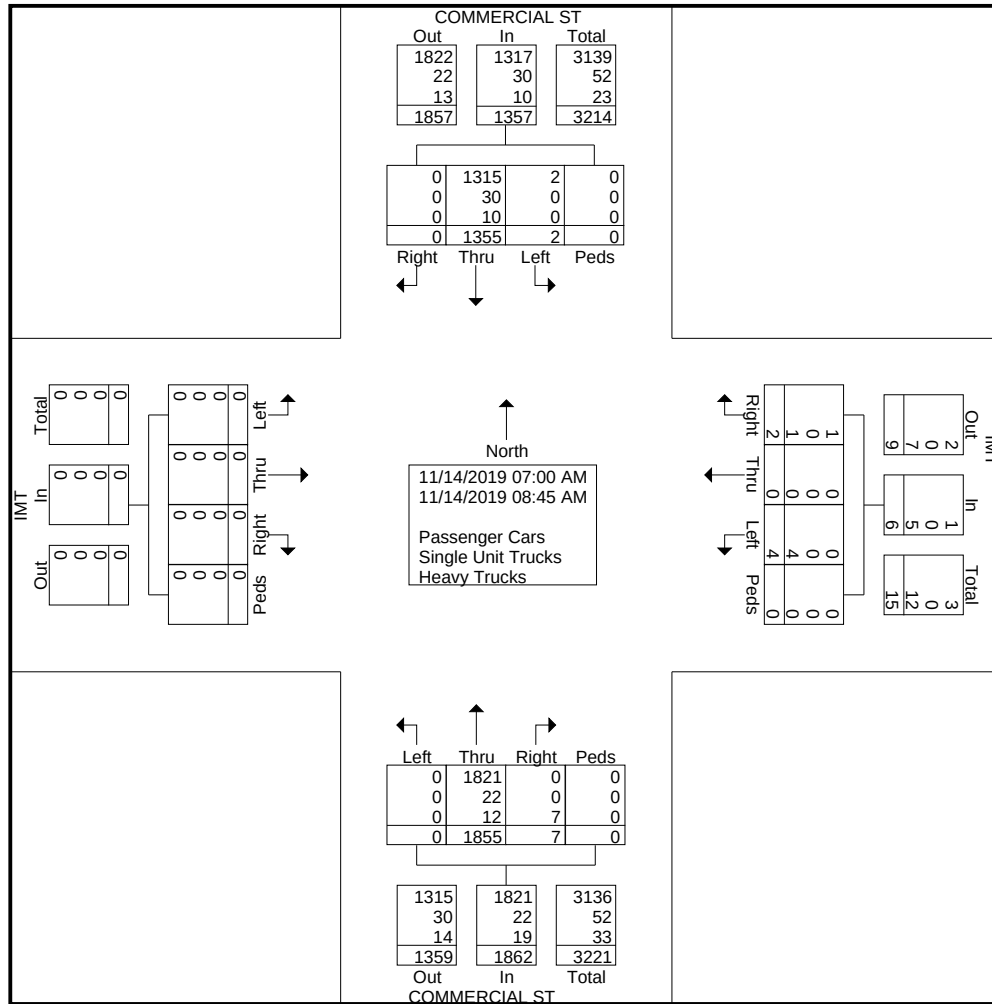
	COMMERCIAL ST From North					IMT From East					COMMERCIAL ST From South					IMT From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	120	0	0	120	0	0	0	0	0	0	160	0	0	160	0	0	0	0	0	280
07:15 AM	0	175	1	0	176	1	0	0	0	1	0	176	0	0	176	0	0	0	0	0	353
07:30 AM	0	193	0	0	193	0	0	0	0	0	0	220	0	0	220	0	0	0	0	0	413
07:45 AM	0	216	0	0	216	0	0	0	0	0	0	252	0	0	252	0	0	0	0	0	468
Total	0	704	1	0	705	1	0	0	0	1	0	808	0	0	808	0	0	0	0	0	1514
08:00 AM	0	155	0	0	155	0	0	1	0	1	1	251	0	0	252	0	0	0	0	0	408
08:15 AM	0	166	0	0	166	0	0	1	0	1	2	310	0	0	312	0	0	0	0	0	479
08:30 AM	0	155	1	0	156	0	0	1	0	1	1	250	0	0	251	0	0	0	0	0	408
08:45 AM	0	175	0	0	175	1	0	1	0	2	3	236	0	0	239	0	0	0	0	0	416
Total	0	651	1	0	652	1	0	4	0	5	7	1047	0	0	1054	0	0	0	0	0	1711
Grand Total	0	1355	2	0	1357	2	0	4	0	6	7	1855	0	0	1862	0	0	0	0	0	3225
Apprch %	0	99.9	0.1	0		33.3	0	66.7	0		0.4	99.6	0	0		0	0	0	0		
Total %	0	42	0.1	0	42.1	0.1	0	0.1	0	0.2	0.2	57.5	0	0	57.7	0	0	0	0	0	
Passenger Cars	0	1315	2	0	1317	1	0	0	0	1	0	1821	0	0	1821	0	0	0	0	0	3139
% Passenger Cars	0	97	100	0	97.1	50	0	0	0	16.7	0	98.2	0	0	97.8	0	0	0	0	0	97.3
Single Unit Trucks	0	30	0	0	30	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	52
% Single Unit Trucks	0	2.2	0	0	2.2	0	0	0	0	0	0	1.2	0	0	1.2	0	0	0	0	0	1.6
Heavy Trucks	0	10	0	0	10	1	0	4	0	5	7	12	0	0	19	0	0	0	0	0	34
% Heavy Trucks	0	0.7	0	0	0.7	50	0	100	0	83.3	100	0.6	0	0	1	0	0	0	0	0	1.1

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Location: Portland, ME
 Counter: TPG
 Board: 2
 Weather: Clear

File Name : AM IMT
 Site Code : 003541
 Start Date : 11/14/2019
 Page No : 2



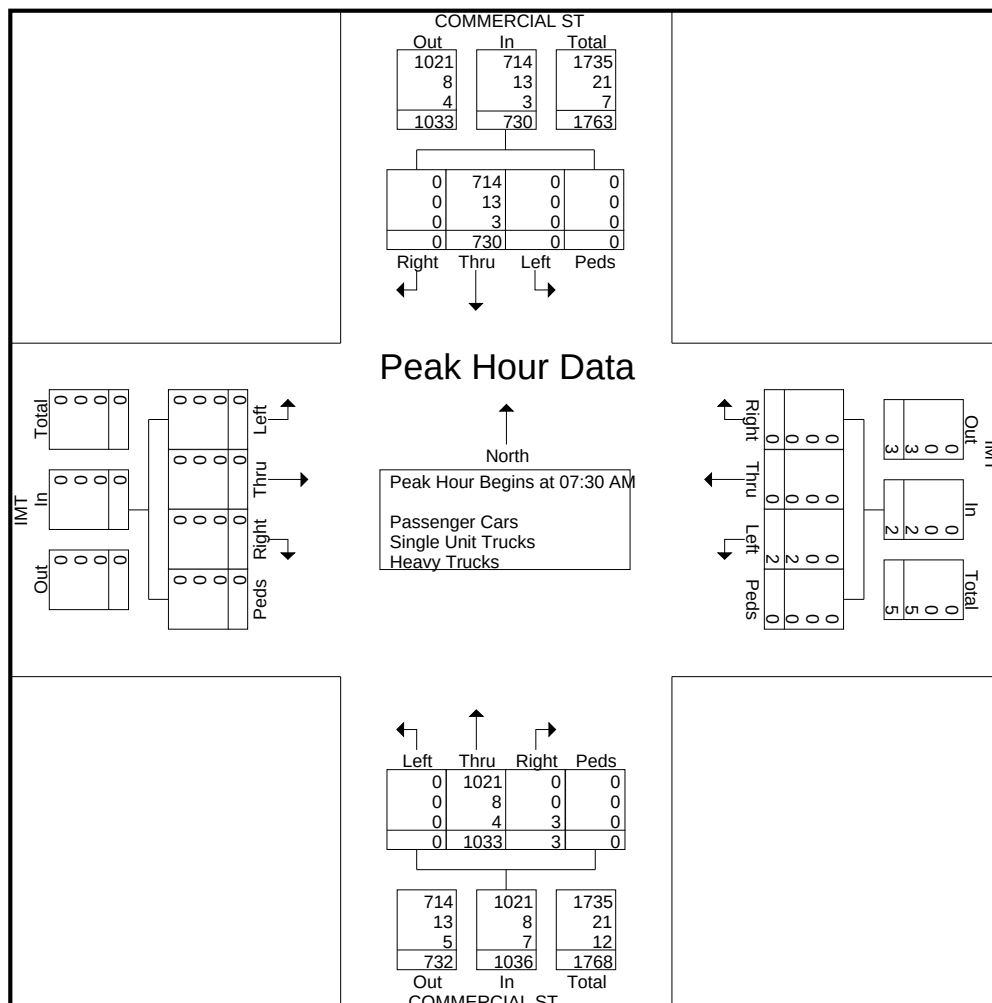
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File Name : AM IMT
Site Code : 003541
Start Date : 11/14/2019
Page No : 3

	COMMERCIAL ST From North					IMT From East					COMMERCIAL ST From South					IMT From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	193	0	0	193	0	0	0	0	0	0	220	0	0	220	0	0	0	0	0	413
07:45 AM	0	216	0	0	216	0	0	0	0	0	0	252	0	0	252	0	0	0	0	0	468
08:00 AM	0	155	0	0	155	0	0	1	0	1	1	251	0	0	252	0	0	0	0	0	408
08:15 AM	0	166	0	0	166	0	0	1	0	1	2	310	0	0	312	0	0	0	0	0	479
Total Volume	0	730	0	0	730	0	0	2	0	2	3	1033	0	0	1036	0	0	0	0	0	1768
% App. Total	0	100	0	0		0	0	100	0		0.3	99.7	0	0		0	0	0	0		
PHF	.000	.845	.000	.000	.845	.000	.000	.500	.000	.500	.375	.833	.000	.000	.830	.000	.000	.000	.000	.000	.923
Passenger Cars	0	714	0	0	714	0	0	0	0	0	0	1021	0	0	1021	0	0	0	0	0	1735
% Passenger Cars	0	97.8	0	0	97.8	0	0	0	0	0	0	98.8	0	0	98.6	0	0	0	0	0	98.1
Single Unit Trucks	0	13	0	0	13	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	21
% Single Unit Trucks	0	1.8	0	0	1.8	0	0	0	0	0	0	0.8	0	0	0.8	0	0	0	0	0	1.2
Heavy Trucks	0	3	0	0	3	0	0	2	0	2	3	4	0	0	7	0	0	0	0	0	12
% Heavy Trucks	0	0.4	0	0	0.4	0	0	100	0	100	100	0.4	0	0	0.7	0	0	0	0	0	0.7



Location: Portland, ME
Counter: TPG
Board: 2
Weather: Clear

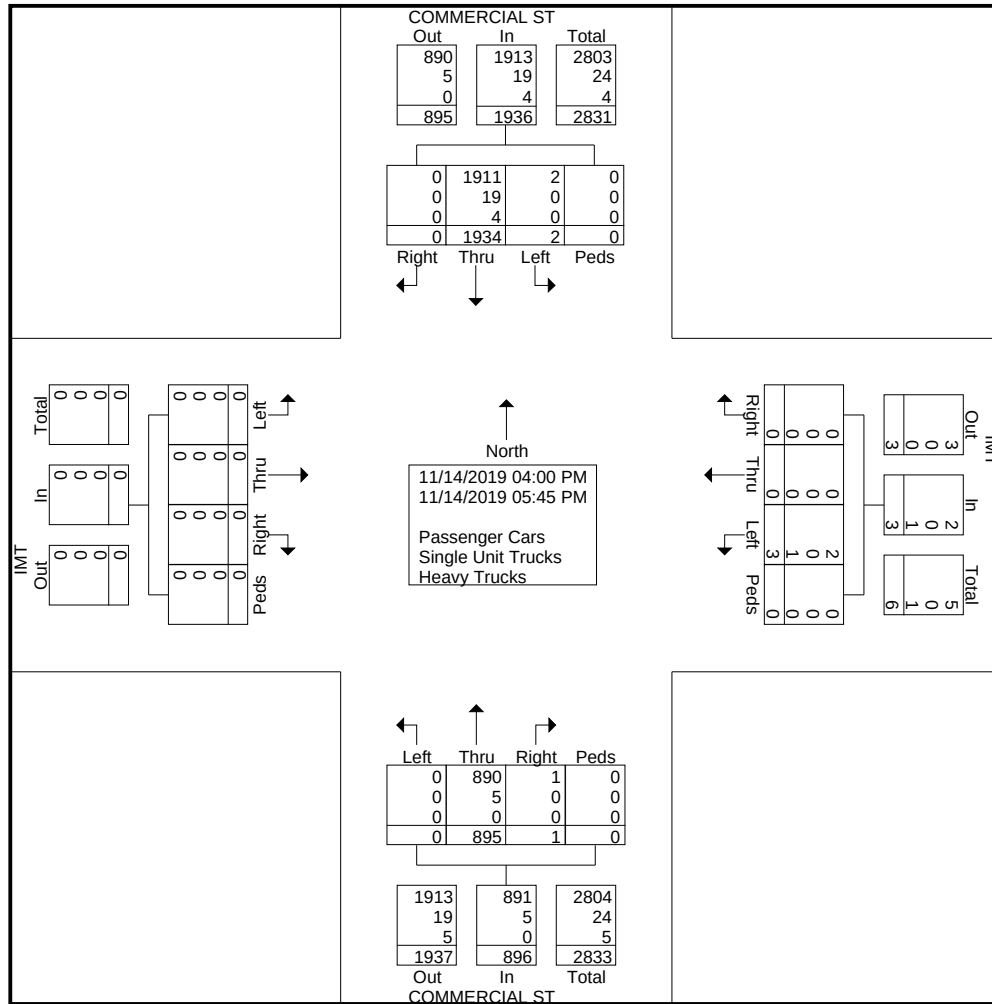
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South Portland, Maine 04106
Engineering Excellence Since 1988

Location: Portland, ME
Counter: TPG
Board: 2
Weather: Clear

File Name : PM IMT
Site Code : 003541
Start Date : 11/14/2019
Page No : 2



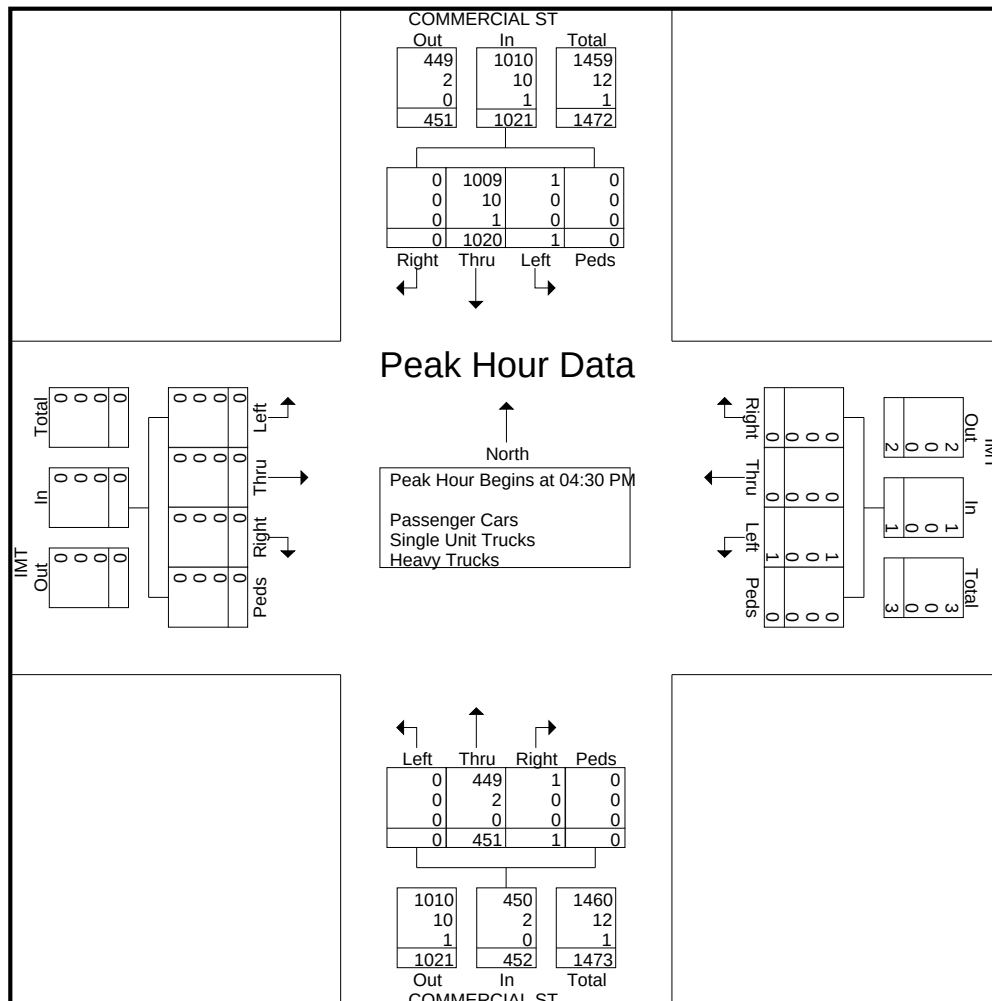
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Location: Portland, ME
Counter: TPG
Board: 2
Weather: Clear

File Name : PM IMT
Site Code : 003541
Start Date : 11/14/2019
Page No : 3

	COMMERCIAL ST From North					IMT From East					COMMERCIAL ST From South					IMT From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	269	0	0	269	0	0	0	0	0	1	112	0	0	113	0	0	0	0	0	382
04:45 PM	0	269	1	0	270	0	0	1	0	1	0	107	0	0	107	0	0	0	0	0	378
05:00 PM	0	248	0	0	248	0	0	0	0	0	0	98	0	0	98	0	0	0	0	0	346
05:15 PM	0	234	0	0	234	0	0	0	0	0	0	134	0	0	134	0	0	0	0	0	368
Total Volume	0	1020	1	0	1021	0	0	1	0	1	1	451	0	0	452	0	0	0	0	0	1474
% App. Total	0	99.9	0.1	0		0	0	100	0		0.2	99.8	0	0		0	0	0	0		
PHF	.000	.948	.250	.000	.945	.000	.000	.250	.000	.250	.250	.841	.000	.000	.843	.000	.000	.000	.000	.000	.965
Passenger Cars	0	1009	1	0	1010	0	0	1	0	1	1	449	0	0	450	0	0	0	0	0	1461
% Passenger Cars	0	98.9	100	0	98.9	0	0	100	0	100	100	99.6	0	0	99.6	0	0	0	0	0	99.1
Single Unit Trucks	0	10	0	0	10	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	12
% Single Unit Trucks	0	1.0	0	0	1.0	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0.8
Heavy Trucks	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Heavy Trucks	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1



Traffic Solutions

17 Mountview Drive
Gorham, ME 04038

Portland W Commerical & Beach St
August 13, 2019 AM
Light Rain
Count by Jen Gilbert

File Name : Portland W Commercial St & Beach St 8-14-19 AM
Site Code : 00813191
Start Date : 8/13/2019
Page No : 1

Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

	W Commerical St From North				Eimskip From East				W Commerical St From South				Beach St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	12	129	0	141	0	0	0	0	0	166	40	206	19	0	0	19	366
07:15 AM	14	142	0	156	1	0	0	1	3	189	66	258	26	0	0	26	441
07:30 AM	17	182	0	199	0	0	0	0	0	230	86	316	21	0	0	21	536
07:45 AM	16	168	2	186	0	0	0	0	1	259	81	341	22	0	0	22	549
Total	59	621	2	682	1	0	0	1	4	844	273	1121	88	0	0	88	1892
08:00 AM	15	154	0	169	2	0	0	2	1	240	85	326	28	0	0	28	525
08:15 AM	14	138	1	153	0	0	0	0	0	268	81	349	18	0	0	18	520
08:30 AM	6	141	0	147	0	0	0	0	0	216	71	287	27	0	0	27	461
08:45 AM	16	114	0	130	1	0	0	1	1	192	86	279	26	0	0	26	436
Total	51	547	1	599	3	0	0	3	2	916	323	1241	99	0	0	99	1942

*** BREAK ***

Traffic Solutions

17 Mountview Drive
Gorham, ME 04038

Portland W Commerical & Beach St
August 13, 2019 AM
Light Rain
Count by Jen Gilbert

File Name : Portland W Commercial St & Beach St 8-14-19 AM
Site Code : 00813191
Start Date : 8/13/2019
Page No : 2

Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

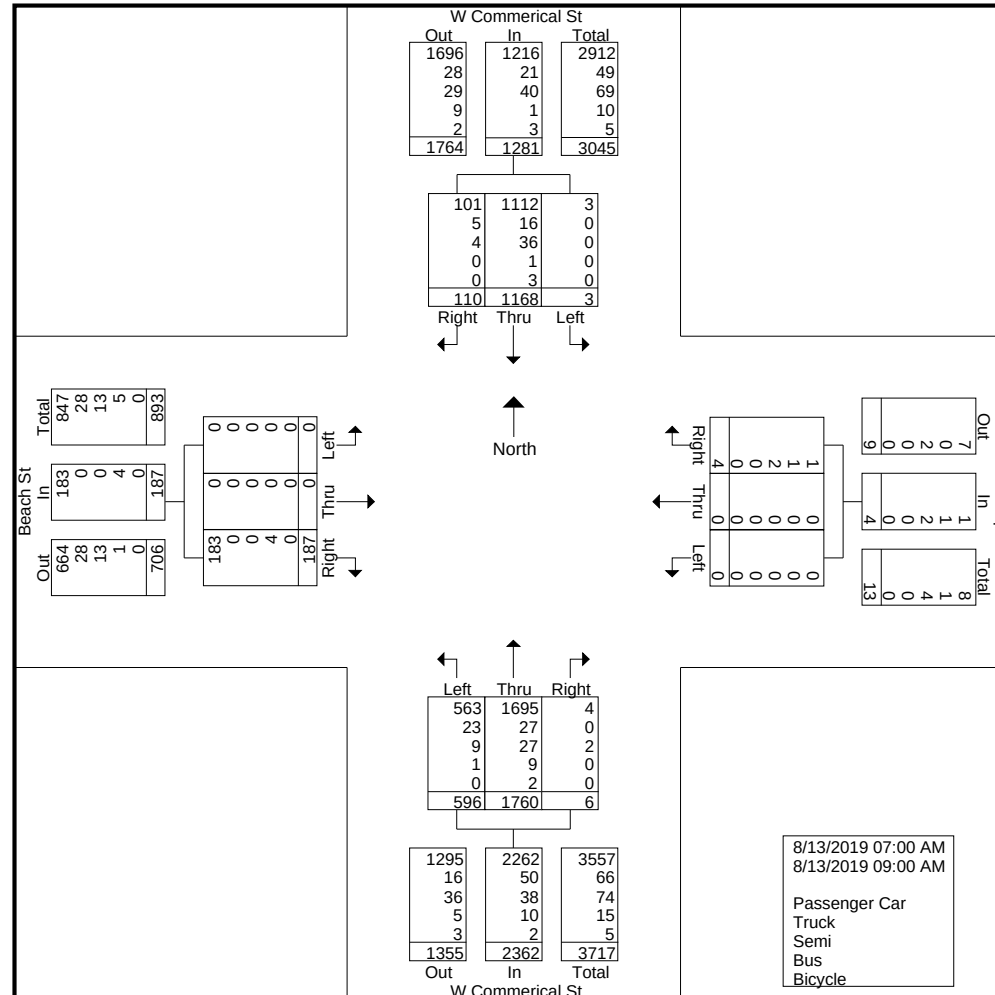
	W Commerical St From North				Eimskip From East				W Commerical St From South				Beach St From West				
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Grand Total	110	1168	3	1281	4	0	0	4	6	1760	596	2362	187	0	0	187	3834
Apprch %	8.6	91.2	0.2		100	0	0		0.3	74.5	25.2		100	0	0		
Total %	2.9	30.5	0.1	33.4	0.1	0	0	0.1	0.2	45.9	15.5	61.6	4.9	0	0	4.9	
Passenger Car	101	1112	3	1216	1	0	0	1	4	1695	563	2262	183	0	0	183	3662
% Passenger Car	91.8	95.2	100	94.9	25	0	0	25	66.7	96.3	94.5	95.8	97.9	0	0	97.9	95.5
Truck	5	16	0	21	1	0	0	1	0	27	23	50	0	0	0	0	72
% Truck	4.5	1.4	0	1.6	25	0	0	25	0	1.5	3.9	2.1	0	0	0	0	1.9
Semi	4	36	0	40	2	0	0	2	2	27	9	38	0	0	0	0	80
% Semi	3.6	3.1	0	3.1	50	0	0	50	33.3	1.5	1.5	1.6	0	0	0	0	2.1
Bus	0	1	0	1	0	0	0	0	0	9	1	10	4	0	0	4	15
% Bus	0	0.1	0	0.1	0	0	0	0	0	0.5	0.2	0.4	2.1	0	0	2.1	0.4
Bicycle	0	3	0	3	0	0	0	0	0	2	0	2	0	0	0	0	5
% Bicycle	0	0.3	0	0.2	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0.1

Traffic Solutions

17 Mountview Drive
Gorham, ME 04038

Portland W Commerical & Beach St
August 13, 2019 AM
Light Rain
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Site Code : 00813191
Start Date : 8/13/2019
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Traffic Solutions

17 Mountview Drive
Gorham, ME 04038

Portland W Commerical & Beach St
August 13, 2019 AM
Light Rain
Count by Jen Gilbert

File Name : Portland W Commercial St & Beach St 8-14-19 AM
Site Code : 00813191
Start Date : 8/13/2019
Page No : 5

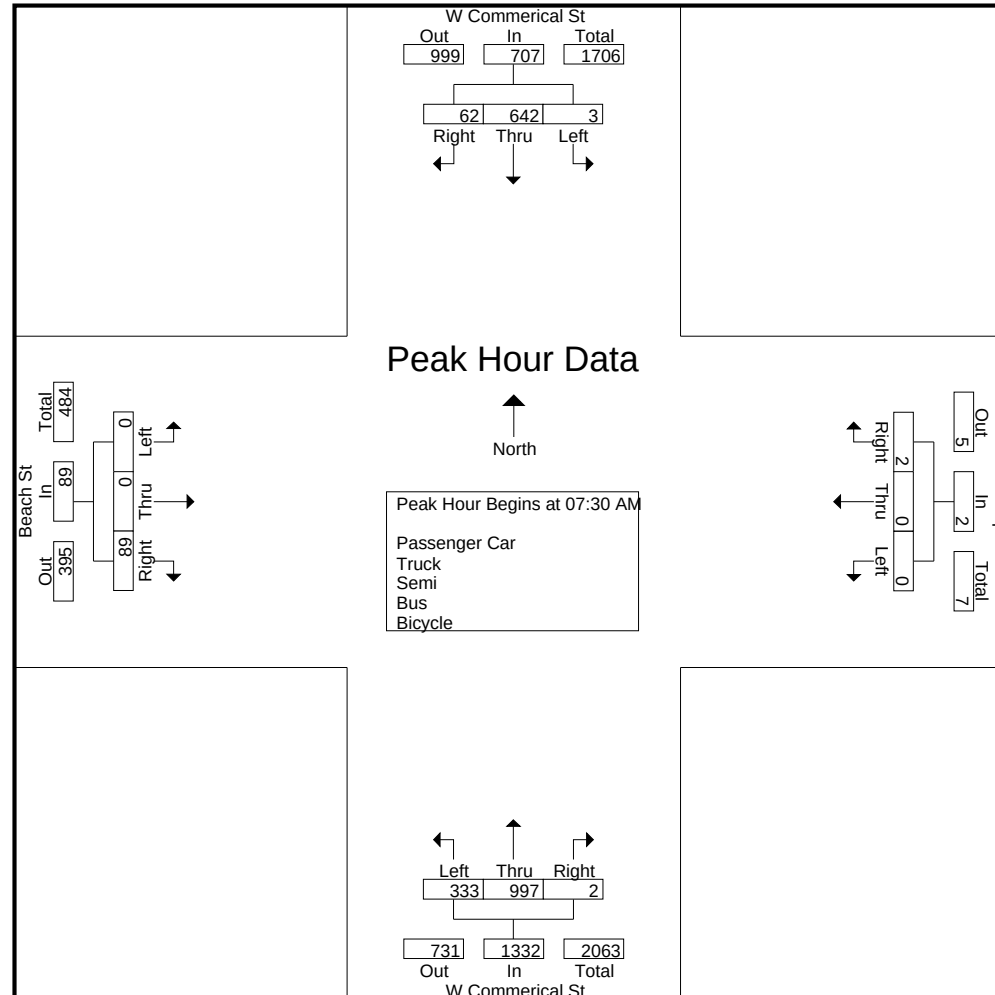
	W Commerical St From North				Eimskip From East				W Commerical St From South				Beach St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	17	182	0	199	0	0	0	0	0	230	86	316	21	0	0	21	536
07:45 AM	16	168	2	186	0	0	0	0	1	259	81	341	22	0	0	22	549
08:00 AM	15	154	0	169	2	0	0	2	1	240	85	326	28	0	0	28	525
08:15 AM	14	138	1	153	0	0	0	0	0	268	81	349	18	0	0	18	520
Total Volume	62	642	3	707	2	0	0	2	2	997	333	1332	89	0	0	89	2130
% App. Total	8.8	90.8	0.4		100	0	0		0.2	74.8	25		100	0	0		
PHF	.912	.882	.375	.888	.250	.000	.000	.250	.500	.930	.968	.954	.795	.000	.000	.795	.970

Traffic Solutions

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August 13, 2019 AM
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File Name : Portland W Commercial St & Beach St 8-14-19 AM
Site Code : 00813191
Start Date : 8/13/2019
Page No : 6



Traffic Solutions

17 Mountview Drive
Gorham, ME 04038

Portland W Commerical & Beach St
August 13, 2019 PM
Thunder Showers
Count by Jen Gilbert

File Name : Portland W Commercial St & Beach St 8-14-19 PM
Site Code : 00813192
Start Date : 8/13/2019
Page No : 1

Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

	W Commercial St From North				Eimskip From East				W Commercial St From South				Beach St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
03:00 PM	21	203	0	224	0	1	1	2	0	102	87	189	30	1	0	31	446
03:15 PM	23	208	2	233	2	1	4	7	1	106	92	199	15	0	0	15	454
03:30 PM	20	227	0	247	0	0	2	2	0	120	84	204	25	0	0	25	478
03:45 PM	16	177	1	194	1	1	2	4	3	136	66	205	21	0	1	22	425
Total	80	815	3	898	3	3	9	15	4	464	329	797	91	1	1	93	1803
04:00 PM	24	194	1	219	2	1	5	8	0	102	104	206	36	1	0	37	470
04:15 PM	13	217	0	230	0	0	0	0	0	117	117	234	37	0	0	37	501
04:30 PM	13	226	0	239	0	2	0	2	1	118	110	229	24	0	0	24	494
04:45 PM	19	239	1	259	0	1	1	2	1	156	95	252	28	0	0	28	541
Total	69	876	2	947	2	4	6	12	2	493	426	921	125	1	0	126	2006
05:00 PM	17	222	1	240	1	1	0	2	1	144	140	285	36	0	0	36	563
05:15 PM	19	241	0	260	1	2	0	3	1	175	88	264	39	0	0	39	566
05:30 PM	10	211	0	221	0	0	1	1	0	142	98	240	46	0	0	46	508
05:45 PM	25	232	0	257	0	0	0	0	0	124	85	209	14	0	1	15	481
Total	71	906	1	978	2	3	1	6	2	585	411	998	135	0	1	136	2118

Traffic Solutions

17 Mountview Drive
Gorham, ME 04038

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Site Code : 00813192
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Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

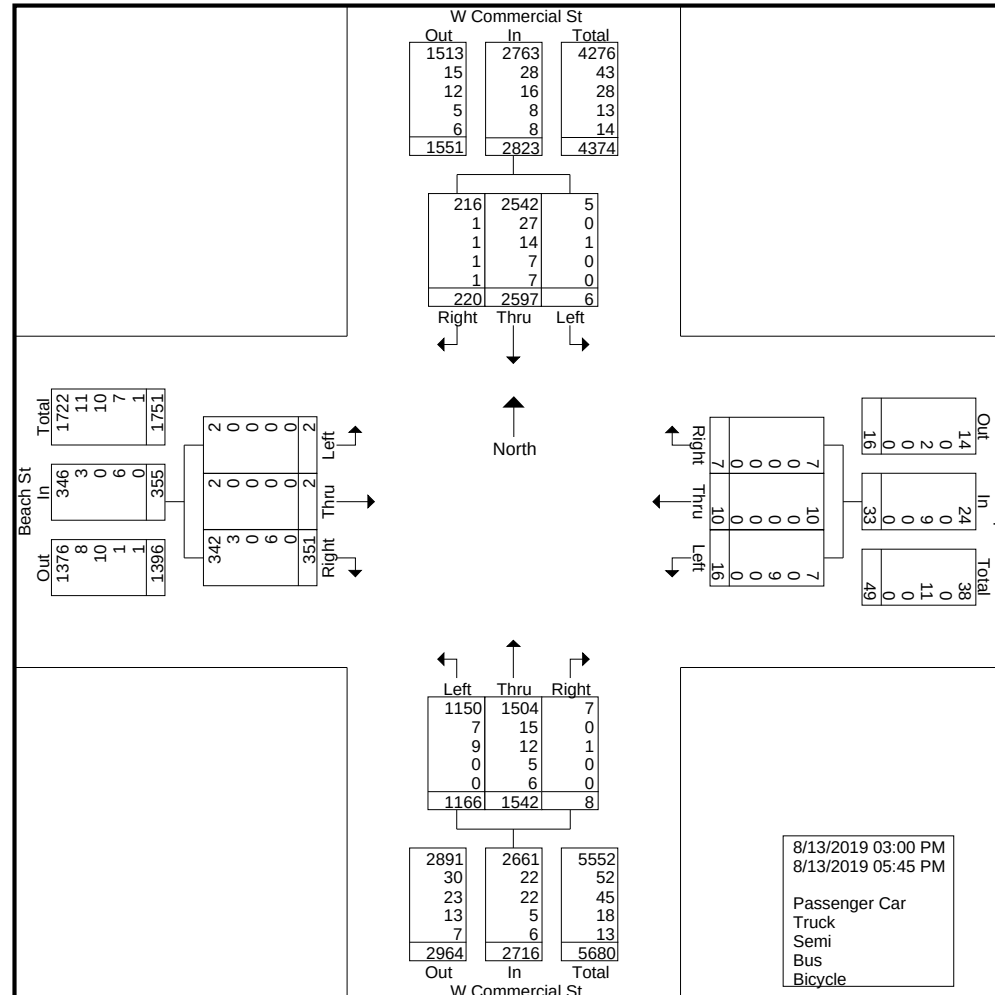
	W Commercial St From North				Eimskip From East				W Commercial St From South				Beach St From West				
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Grand Total	220	2597	6	2823	7	10	16	33	8	1542	1166	2716	351	2	2	355	5927
Apprch %	7.8	92	0.2		21.2	30.3	48.5		0.3	56.8	42.9		98.9	0.6	0.6		
Total %	3.7	43.8	0.1	47.6	0.1	0.2	0.3	0.6	0.1	26	19.7	45.8	5.9	0	0	6	
Passenger Car	216	2542	5	2763	7	10	7	24	7	1504	1150	2661	342	2	2	346	5794
% Passenger Car	98.2	97.9	83.3	97.9	100	100	43.8	72.7	87.5	97.5	98.6	98	97.4	100	100	97.5	97.8
Truck	1	27	0	28	0	0	0	0	0	15	7	22	3	0	0	3	53
% Truck	0.5	1	0	1	0	0	0	0	0	1	0.6	0.8	0.9	0	0	0.8	0.9
Semi	1	14	1	16	0	0	9	9	1	12	9	22	0	0	0	0	47
% Semi	0.5	0.5	16.7	0.6	0	0	56.2	27.3	12.5	0.8	0.8	0.8	0	0	0	0	0.8
Bus	1	7	0	8	0	0	0	0	0	5	0	5	6	0	0	6	19
% Bus	0.5	0.3	0	0.3	0	0	0	0	0	0.3	0	0.2	1.7	0	0	1.7	0.3
Bicycle	1	7	0	8	0	0	0	0	0	6	0	6	0	0	0	0	14
% Bicycle	0.5	0.3	0	0.3	0	0	0	0	0	0.4	0	0.2	0	0	0	0	0.2

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Gorham, ME 04038

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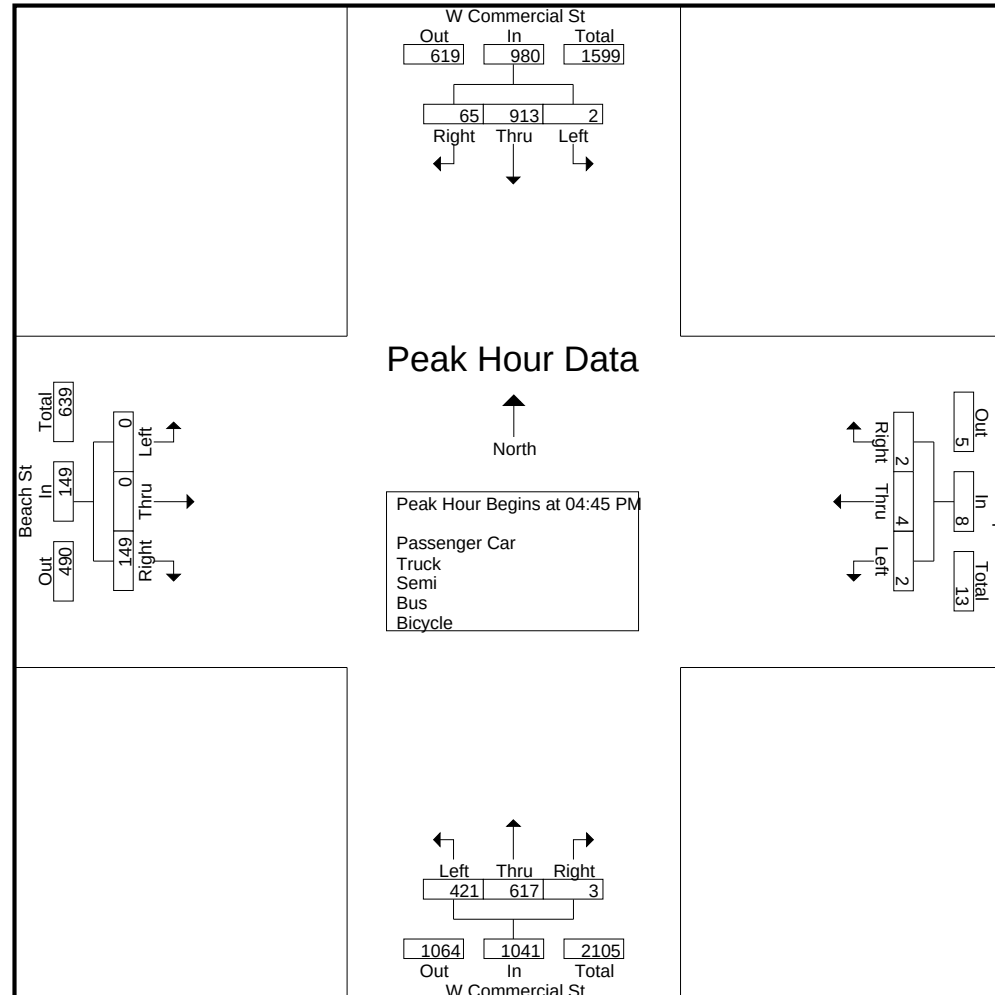
	W Commercial St From North				Eimskip From East				W Commercial St From South				Beach St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	19	239	1	259	0	1	1	2	1	156	95	252	28	0	0	28	541
05:00 PM	17	222	1	240	1	1	0	2	1	144	140	285	36	0	0	36	563
05:15 PM	19	241	0	260	1	2	0	3	1	175	88	264	39	0	0	39	566
05:30 PM	10	211	0	221	0	0	1	1	0	142	98	240	46	0	0	46	508
Total Volume	65	913	2	980	2	4	2	8	3	617	421	1041	149	0	0	149	2178
% App. Total	6.6	93.2	0.2		25	50	25		0.3	59.3	40.4		100	0	0		
PHF	.855	.947	.500	.942	.500	.500	.500	.667	.750	.881	.752	.913	.810	.000	.000	.810	.962

Traffic Solutions

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Start Date : 8/13/2019
Page No : 6



FLOOD HAZARD DEVELOPMENT PERMIT

For Minor Development

Portland, **Maine**
(For Development not considered a Substantial Improvement)

This Flood Hazard Development Permit allows minor development as provided in Article V.F.3. of the Floodplain Management Ordinance of Portland, Maine, for development in a Special Flood Hazard Area as defined in said ordinance. Development authorized by this permit must be adequately anchored to prevent flotation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. be constructed with materials resistant to flood damage and be constructed by methods and practices that minimize flood damage. This permit is issued based on documentation that the information provided in the Flood Hazard Development Permit Application is in compliance with the Floodplain Management Ordinance.

Tax Map: 59 Lot #: Block A, Lots 1,2,5-11

Project Description: Construction of a fire access drive and new stormwater outfall associated with upland development

The permittee understands and agrees that:

- The permit is issued on the representations made herein and on the application for permit;
- The permit may be revoked because of any breach of representation;
- Once a permit is revoked all work shall cease until the permit is reissued or a new permit is issued;
- The permit will not grant any right or privilege to erect any structure or use any premises described for any purposes or in any manner prohibited by the ordinances, codes, or regulations of the municipality;
- The permittee hereby gives consent to the Code Enforcement Officer to enter and inspect activity covered under the provisions of the Floodplain Management Ordinance;
- The permit form will be posted in a conspicuous place on the premises in plain view; and,
- The permit will expire if no work is commenced within 180 days of issuance.

I hereby certify that all the statements in, and in the attachments to this permit are a true description of the existing property and the proposed development project.

Owner: _____ Date: _____

Signature

or

Authorized Agent:  Date: 5/18/2020

Signature

Issued by: _____ Date: _____

Permit #: _____

February 28, 2020

City of Portland
Planning Board
389 Congress St, 4th Floor
Portland, ME 04101

Re: Maine International Cold Storage Facility – Authorization for Permitting

To Whom it May Concern:

On behalf of Maine International Cold Storage Facility, LLC, Woodard & Curran is authorized to apply for Planning Board approval for the proposed Maine International Cold Storage Facility to be located at approximately 40 West Commercial Street in Portland. Furthermore, Woodard & Curran is authorized to act on behalf of Maine International Cold Storage Facility, LLC throughout the permitting process.

Should you have any further questions, please do not hesitate to contact me at Tom.Oshaughnessy@amberinfrastructure.com

Regards,



Tom O'Shaughnessy, President Maine International Cold Storage Facility, LLC



CENTERLINE ALIGNMENT			
Line #	Length	Direction	Start Point
L1	91.76	S28°48'01"E	N:295,711.2 E:2,927,292.-
L2	314.88	N70°51'53"E	N:295,555.4 E:2,927,532.-

1



Maine International Cold Storage Facility
Statement of Compliance with City of Portland Flood Plain Management Regulations

The proposed work is located on waterfront associated with the proposed Maine International Cold Storage Facility located at 40 West Commercial Street in Portland, Maine. The building included in the proposed development will be located outside of the shoreland zone. A portion of the building will be located within the Flood Zone AE. The work within the shoreland zone consists of site work, including the construction of a subsurface stormwater management system and a new 36" stormwater outfall, a fire access road and electrical infrastructure for lighting. The project will comply with the standards provided in Section 14-450.8 of the City's Land Use Code; these standards are provided below in italics for your reference, followed by a description of how the proposed project will comply:

(a) All development: All development shall:

- 1. Be designed or modified and adequately anchored to prevent flotation (excluding piers and docks), collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;*

All improvements are designed to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

- 2. Use construction materials that are resistant to flood damage;*

Construction materials that are resistant to flood damage have been specified.

- 3. Use construction methods and practices that will minimize flood damage; and*

Construction methods and practices that will minimize flood damage will be utilized.

- 4. Use electrical, heating, ventilation, plumbing, and air conditioning equipment, and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during flooding conditions.*

Services for electrical, heating, ventilation, plumbing, and air conditioning equipment, and other service facilities associated with the upland development have been located outside of the floodplain to the greatest extent possible. Underground electrical services associated with lighting infrastructure within the shoreland zone will be designed to prevent water from entering or accumulating within the components during flooding conditions.

(b) Water supply: All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems.

Water services are not proposed in the Shoreland Zone; this Standard does not apply.

(c) Sanitary sewage systems: All new and replacement sanitary sewage systems shall be designed and located to minimize or eliminate infiltration of flood waters into the system and discharges from the system into flood waters.

The proposed work does not include new or replacement sanitary sewage systems in the Shoreland Zone; this Standard does not apply.



- (d) *On-site waste disposal systems: On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during floods.*

The proposed work does not include on-site waste disposal systems; this Standard does not apply.

- (e) *Watercourse carrying capacity: All development associated with altered or relocated portions of a watercourse shall be constructed and maintained in such a manner that no reduction occurs in the flood carrying capacity of the watercourse.*

The proposed work does not include any watercourse alterations that will result in a reduction of flood carrying capacity of the watercourse.

- (f) *Residential: New construction or substantial improvement of any residential structure located within:*
1. *Zones A1-30, AE, and AH shall have the lowest floor (including basement) elevated to at least two (2) feet above the base flood elevation.*
 2. *Zones AO and AH shall have adequate drainage paths around structures on slopes, to guide flood water away from the proposed structures.*
 3. *Zone AO shall have the lowest floor (including basement) elevated above the highest adjacent grade:*
 - a. *At least two (2) feet higher than the depth specified in feet on the community's Flood Insurance Rate Map; or*
 - b. *At least three (3) feet if no depth number is specified.*
 4. *Zone A shall have the lowest floor (including basement) elevated to at least two (2) feet above the base flood elevation utilizing information obtained pursuant to section 14-450.6(b)4.a.ii.; section 14-450.7(b)4; or section 14-450.7(c)1.*
 5. *Zones V1-30 and VE shall meet the requirements of section 14-450.8(p).*

The proposed work does not include residential structures; this Standard does not apply.

- (g) *Nonresidential: New construction or substantial improvement of any nonresidential structure located within:*
1. *Zones A1-30, AE, and AH shall have the lowest floor (including basement) elevated to at least two (2) feet above the base flood elevation, or together with attendant utility and sanitary facilities shall:*
 - a. *Be floodproofed to at least two (2) feet above the base flood elevation so that below that elevation the structure is watertight with walls substantially impermeable to the passage of water;*
 - b. *Have structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy; and*
 - c. *Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions of this section. Such certification shall be provided with the application for a flood hazard development permit, as required by section 14-450.6(b)4d and shall include a record of the elevation above mean sea level to which the structure is floodproofed.*
 2. *Zones AO and AH shall have adequate drainage paths around structures on slopes, to guide flood water away from the proposed structures.*



3. Zone AO shall have the lowest floor (including basement) elevated above the highest adjacent grade:
 - a. At least two (2) feet higher than the depth specified in feet on the community's Flood Insurance Rate Map; or
 - b. At least three (3) feet if no depth number is specified; or
 - c. Together with attendant utility and sanitary facilities be floodproofed to meet the elevation requirements of this section and floodproofing standards of section 14-450.8(g).
4. Zone A shall have the lowest floor (including basement) elevated to at least two (2) feet above the base flood elevation utilizing information obtained pursuant to section 14-450.6(b)4.a.ii.; section 14-450.7(b)4; section 14-450.7(c)1; or
5. Zones V1-30 and VE shall meet the requirements of section 14-450.8(p).

A portion of the proposed development is located within Flood Zone AE and FEMA Special Flood Hazard Zone A2 with a 100-year flood elevation of 10. The project will comply with the applicable requirements. A portion of the building will be located within Zone AE. The lowest floor elevation of the proposed building (14 feet) is located more than two feet above the 100-year flood elevation (10 feet). The ground surface elevation along the southern edge of the building will be raised above elevation 11 for flood protection. Design plans will be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice.

(h) Manufactured homes: New or substantially improved manufactured homes located within:

1. Zones A1-30, AE, and AH shall:
 - a. Be elevated on a permanent foundation such that the lowest floor is at least two (2) feet above the base flood elevation; and
 - b. Be securely anchored to an adequately anchored foundation system to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to:
 - i. Over-the-top ties anchored to the ground at the four (4) corners of the manufactured home, plus two (2) additional ties per side at intermediate points (manufactured homes less than fifty (50) feet long require one (1) additional tie per side); or by
 - ii. Frame ties at each corner of the home, plus five (5) additional ties along each side at intermediate points (manufactured homes less than fifty (50) feet long require four (4) additional ties per side).
 - iii. All components of the anchoring system described in section 14-450.8(h)1.b.i. and ii. Shall be capable of carrying a force of four thousand eight hundred (4,800) pounds.
2. Zones AO and AH shall have adequate drainage paths around structures on slopes, to guide flood water away from the proposed structures.
3. Zone AO shall have the lowest floor (including basement) elevated above the highest adjacent grade:
 - a. At least two (2) feet higher than the depth specified in feet on the community's Flood Insurance Rate Map; or
 - b. At least three (3) feet if no depth number is specified; and
 - c. Meet the requirements of section 14-450.8(h)1.b.
4. Zone A shall:
 - a. Be elevated on a permanent foundation such that the lowest floor is at least two (2) feet above the base flood elevation utilizing information obtained



*pursuant to section 14-450.6(b)4.a.ii; section 14-450.7(b)4; section 14-450.7(c)1; and
b. Meet the requirements of section 14-450.7(2)b. 5. Zones V1-30 and VE shall meet the requirements of article VI.P.*

The proposed work does not include new or improved manufactured homes; this Standard does not apply.

- (i) *Recreational vehicles: Recreational vehicles located within:*
1. *Zones A1-30, AH and AE shall either:*
 - a. *Be on the site for fewer than one hundred eighty (180) consecutive days;*
 - b. *Be fully licensed and ready for highway use. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only be quick disconnect type utilities and security devices, and has no permanently attached additions; or*
 - c. *Be permitted in accordance with the elevation and anchoring requirements for "manufactured homes" in section 14-450.8(h)1a and b.*
 2. *Zones V1-30 and VE shall meet the requirements of either section 14-450.8(i)1.a. or b. or section 14-450.8(p).*

The proposed work does not include recreational vehicles; this Standard does not apply.

- (j) *Accessory structures: Accessory structures located within Zones A1-30, AE, AO, AH and A, shall be exempt from the elevation criteria required in section 14-450.8(f) and (g) above, if all other requirements of section 14-450.8 and all the following requirements are met. Accessory structures shall:*
1. *Be five hundred (500) square feet or less and have a value less than three thousand dollars (\$3,000.00);*
 2. *Have unfinished interiors and not be used for human habitation;*
 3. *Have hydraulic openings, as specified in section 14-450.8(l), in at least two (2) different walls of the accessory structure;*
 4. *Be located outside the floodway;*
 5. *When possible be constructed and placed on the building site so as to offer the minimum resistance to the flow of flood waters and be placed further from the source of flooding than is the primary structure; and*
 6. *Have only ground fault interrupt electrical outlets. The electric service disconnect shall be located above the base flood elevation and when possible outside the special flood hazard area.*

The proposed work does not include accessory structures; this Standard does not apply.

- (k) *Floodways:*
1. *In Zones A1-30 and AE, encroachments, including fill, new construction, substantial improvement, and other development shall not be permitted in ravine areas, for which a regulatory floodway is designated on the community's Flood Insurance Rate Map or Flood Boundary and Floodway Map, unless a technical evaluation certified by a registered professional engineer is provided demonstrating that such encroachments will not result in any increase in flood levels within the community during the occurrence of the base flood discharge.*



2. *In Zones A1-30 and AE riverine areas, for which no regulatory floodway is designated, encroachments, including fill, new construction, substantial improvement, and other development shall not be permitted in the floodway as determined in section 14-450.8(11)3. unless a technical evaluation certified by a registered professional engineer is provided demonstrating that the cumulative effect of the proposed development, when combined with all other existing development and anticipated development:*
 - a. *Will not increase the water surface elevation of the base flood more than one (1) foot at any point within the community; and*
 - b. *Is consistent with the technical criteria contained in chapter 5 entitled "Hydraulic Analyses," Flood Insurance Study — Guidelines and Specifications for Study Contractors, (FEMA 37/January 1995, as amended).*
3. *In Zones A1-30, AE, and A riverine areas for which no regulatory floodway is designated, the regulatory floodway is determined to be the channel of the river or other watercourse and the adjacent land areas to a distance of one-half (1/2) the width of the flood plain as measured from the normal high water mark to the upland limit of the flood plain. Encroachments, including fill, new construction, substantial improvement, and other development shall not be permitted unless a technical evaluation certified by a registered professional engineer is provided meeting the requirements of section 14-450.8(k)2.a. and b.*

The proposed work will not result in an increase in flood levels within the community during the occurrence of base flood discharge.

- (l) *Enclosed areas below the lowest floor: New construction or substantial improvement of any structure in Zones A1-30, AE, AO, AH and A that meets the development standards of article VI, including the elevation requirements of section 14-450.8, paragraphs (f), (g) or (h) and is elevated on posts, columns, piers, piles, "stilts," or crawl spaces may be enclosed below the base flood elevation requirements provided all the following criteria are met or exceeded:*
 1. *Enclosed areas are not basements;*
 2. *Enclosed areas shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood water. Designs for meeting this requirement must either:*
 - a. *Be engineered and certified by a registered professional engineer or architect; or*
 - b. *Meet or exceed the following minimum criteria:*
 - i. *A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of the enclosed area;*
 - ii. *The bottom of all openings shall be no higher than one (1) foot above the lowest grade; and*
 - iii. *Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the entry and exit of flood waters automatically without any external influence or control such as human intervention, including the use of electrical and other non-automatic mechanical means;*
 3. *The enclosed area shall not be used for human habitation; and*
 4. *The enclosed areas are usable solely for building access, parking vehicles, or storing of articles and equipment used for maintenance of the building.*



The proposed building does not include enclosed areas below the lowest floor; this Standard does not apply.

- (m) *Bridges: New construction or substantial improvement of any bridge in Zones A1-30, AE, AO, AH, A, V1-30 and VE shall be designed such that:*
1. *When possible, the lowest horizontal member (excluding the pilings, or columns) is elevated to at least two (2) feet above the base flood elevation; and*
 2. *A registered professional engineer shall certify that:*
 - a. *The structural design and methods of construction shall meet the elevation requirements of this section and the floodway standards of section 14-450.8(k); and*
 - b. *The foundation and superstructure attached thereto is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all structural components. Water loading values used shall be those associated with the base flood.*

The proposed work does not include new or improved bridges; this Standard does not apply.

- (n) *Containment walls: New construction or substantial improvement of any containment wall located within:*
1. *Zones A1-30, AE, AH, V1-30 and VE shall:*
 - a. *Have the containment wall elevated to at least two (2) feet above the base flood elevation;*
 - b. *Have structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy; and*
 - c. *Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions of this section. Such certification shall be provided with the application for a flood hazard development permit, as required by section 14-450.6(b)d.4.*
 2. *Zones AO and AH shall have adequate drainage paths around containment walls on slopes, to guide flood water away from the proposed walls.*
 3. *Zone AO shall have the top of the containment wall elevated above the highest adjacent grade:*
 - a. *At least two (2) feet higher than the depth specified in feet on the community's Flood Insurance Rate Map; or*
 - b. *At least three (3) feet if no depth number is specified.*
 4. *Zone A shall have the containment wall elevated to at least two (2) feet above the base flood elevation utilizing information obtained pursuant to section 14-450.6(b)4.a.ii.; section 14-450.7(a)4; or section 14-450.7(c)1.*

The proposed work does not include new construction or substantial improvement of any containment walls.

- (o) *Wharves, piers and docks: New construction or substantial improvement of wharves, piers, and docks are permitted in Zones A, A1-30, AE, AO, AH, V1-30, and VE, in and over water and seaward of the mean high tide if the following requirements are met:*
1. *Wharves, piers, and docks shall comply with all applicable local, state and federal regulations; and*



2. *Commercial wharves, piers, and docks involving fill shall adhere to the design and construction standards contained in the U.S. Army Corps of Engineers' Shore Protection Manual.*

The proposed work does not include any wharves, piers, or docks; this Standard does not apply.

(p) *Coastal flood plains:*

1. *All new construction located within Zones A1-30, AE, A, V1-30 and VE shall comply with all applicable local, state and federal regulations.*

The proposed work will comply with all applicable local, state and federal regulations.

2. *New construction or substantial improvement of any structure located within Zones V1-30 or VE shall:*
 - a. *Be elevated on posts or columns such that:*
 - i. *The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to two (2) feet above the base flood elevation;*
 - ii. *The pile or column foundation and the elevated portion of the structure attached thereto is anchored to resist flotation, collapse, and lateral movement due to the effects of wind and water loads acting simultaneously on all building components; and*
 - iii. *Water loading values used shall be those associated with the base flood. Wind loading values used shall be those required by applicable state and local building standards.*
 - b. *Have the space below the lowest floor:*
 - i. *Free of obstructions; or*
 - ii. *Constructed with open wood lattice-work, or insect screening intended to collapse under wind and water without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting piles or columns; or*
 - iii. *Constructed with nonsupporting breakaway walls which have a design safe loading resistance of not less than ten (10) or more than twenty (20) pounds per square foot.*

The proposed work is not located within Zones V1-30 or VE; this Standard does not apply.

3. *A registered professional engineer or architect shall:*
 - a. *Develop or review the structural design, specifications, and plans for the construction, which must meet or exceed the technical criteria contained in the Coastal Construction Manual, (FEMA-55/February, 1986); and*
 - b. *Certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the criteria of section 14-450.8(p)2.*

The proposed work will be designed by a registered professional structural engineer from Thornton Tomasetti. The Contractor has not been selected at this time, but the



design specifications will require that construction methods are in accordance with accepted standards of practice.

4. *The use of fill for structural support in Zones V1-30 and VE is prohibited.*

The proposed work is not located within Zones V1-30 or VE.

5. *Human alteration of sand dunes within Zones V1-30 and VE is prohibited unless it can be demonstrated that such alterations will not increase potential flood damage.*

The proposed work is not located within Zones V1-30 or VE; this Standard does not apply.

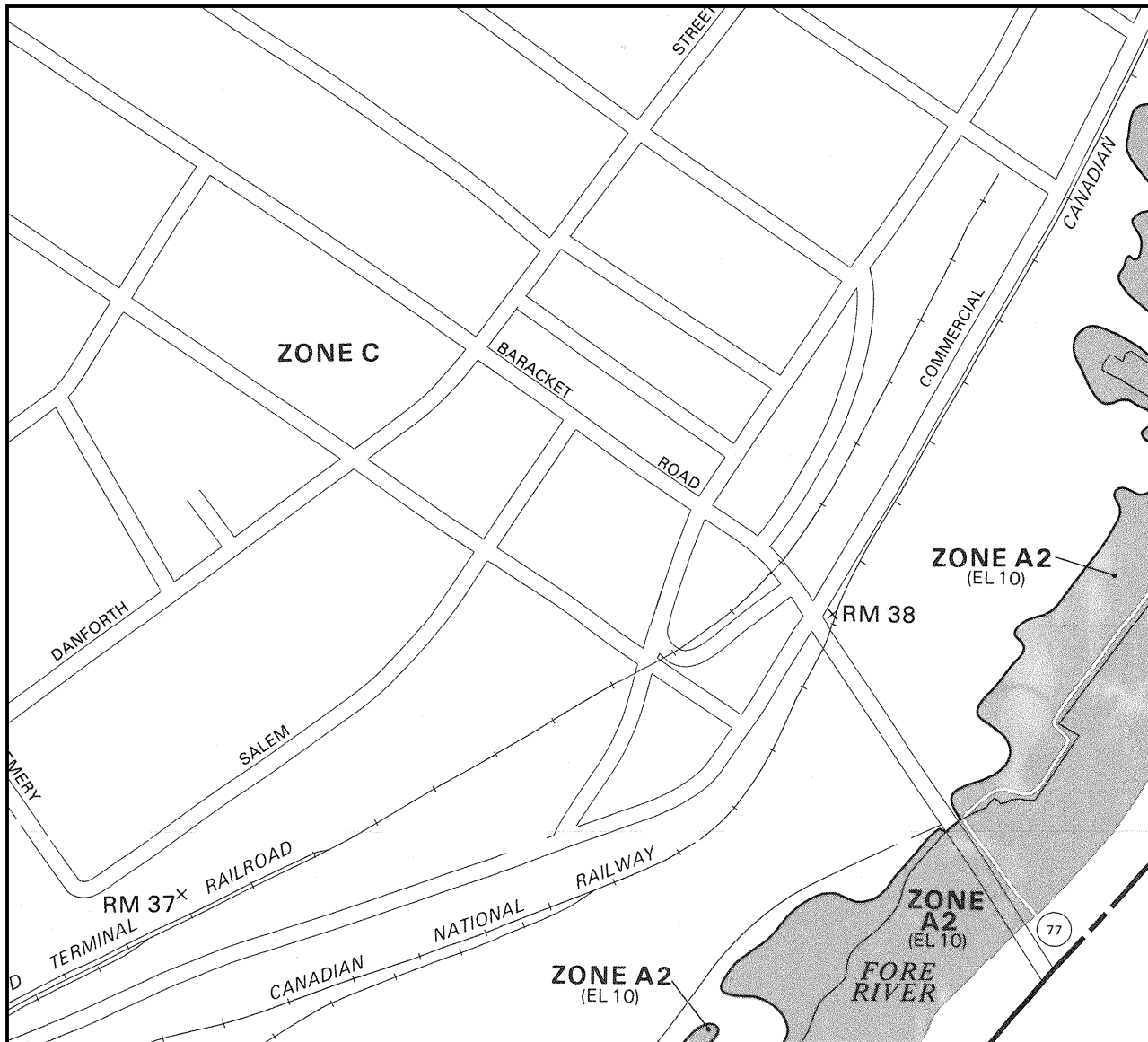
6. *The enclosed areas may be used solely for parking vehicles, building access, and storage.*

The proposed work does not include any enclosed areas within the applicable zones; this Standard does not apply.

7. *Lobster sheds and fishing sheds located seaward of mean high tide shall be exempt from the elevation requirement in section 14-450.8(g) only upon review and approval by the planning authority or Planning Board and if all the following requirements of section 14-450.8(a), (k) and (l) are met:*

- a. The conditional use shall be limited to low value structures such as metal or wood sheds two hundred (200) square feet or less and shall not exceed more than one (1) story.*
- b. The structure shall be securely anchored to the wharf or pier to resist flotation, collapse and lateral movement due to the effect of wind and water loads acting simultaneously on all building components.*
- c. The structure will not adversely increase wave or debris impact forces affecting nearby buildings.*
- d. The structure shall have unfinished interiors and shall not be used for human habitation.*
- e. Any mechanical, utility equipment and fuel storage tanks must be anchored and either elevated or floodproofed to two (2) feet above the base flood elevation. All electrical outlets shall be ground fault interrupt type. The electrical service disconnect shall be located on shore above the base flood elevation and when possible outside the special flood hazard area. All electrical outlets shall be ground fault interrupt type. The electrical service disconnect shall be located on shore above the base flood elevation and when possible outside the special flood hazard area.*

The proposed work does not include any lobster sheds or fishing sheds; this Standard does not apply.



APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM FLOOD INSURANCE RATE MAP

CITY OF
PORTLAND, MAINE
CUMBERLAND COUNTY

PANEL 13 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

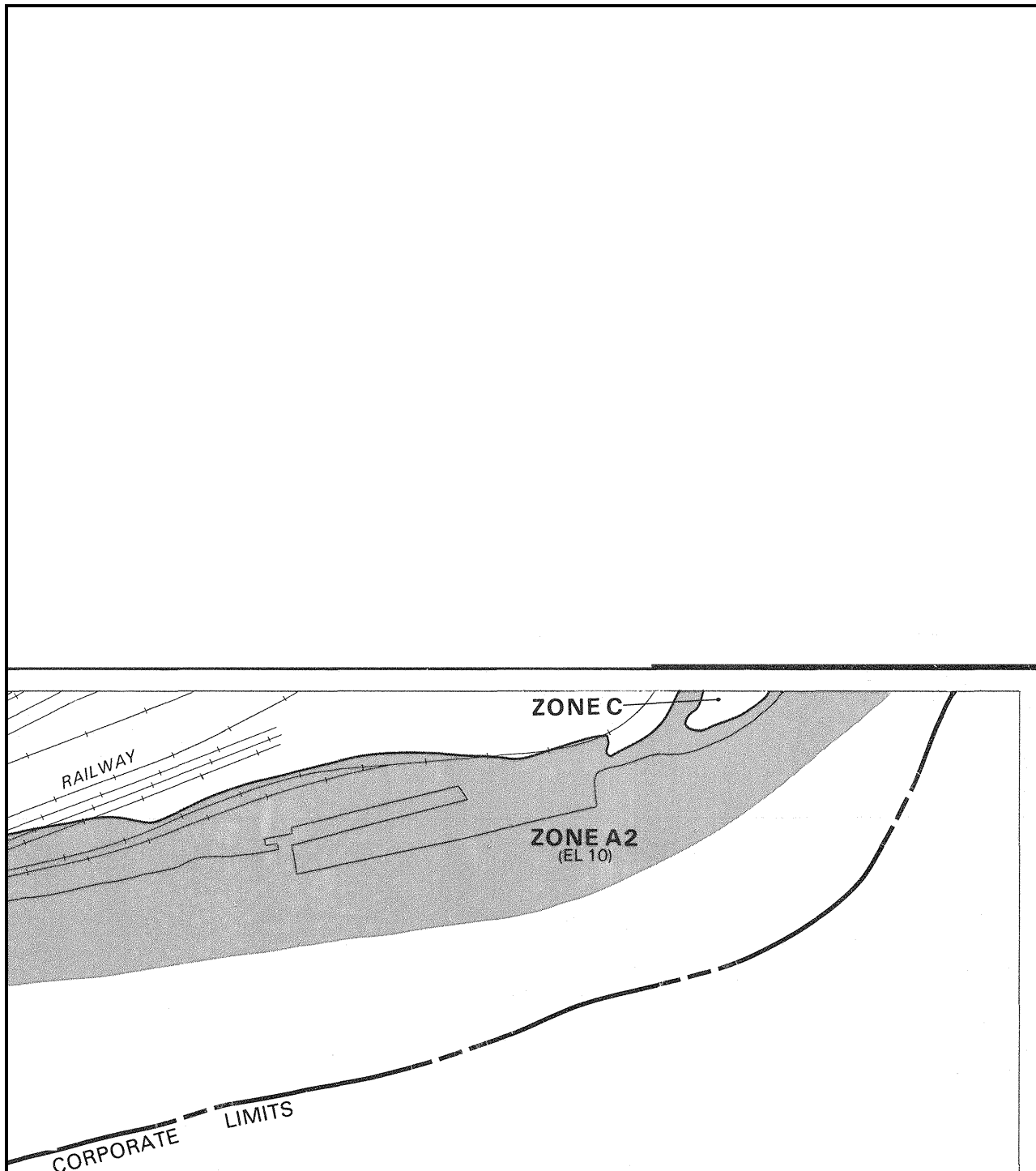
COMMUNITY-PANEL NUMBER
230051 0013 B

EFFECTIVE DATE:
JULY 17, 1986

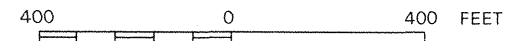


Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
PORTLAND, MAINE
CUMBERLAND COUNTY

PANEL 16 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230051 0016 B

EFFECTIVE DATE:
JULY 17, 1986



Federal Emergency Management Agency

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May 15, 2020

Christian Roadman, Planner
City of Portland Planning Division
389 Congress Street
Portland, ME 04101

Re: Cold Storage Level III Site Plan Submittal – Maine International Cold Storage Facility, LLC
Response to Planning Staff Comments

Dear Christian:

Thank you for coordinating the review of the proposed Maine International Cold Storage Facility located at 40 West Commercial Street in Portland, Maine. To support the Level III Site Plan process, we are providing the following responses to comments we have received from the City:

Preliminary Comments from City dated April 24, 2020

Zoning Comments

- *Cold storage facility is listed as a conditional use in the WPDZ zone. Staff reviewer is not aware of an existing conditional use application. This will be required for Planning Board review.*
 - Response: The Planning Office Manager was contacted and a Conditional Use Application has been added to the workflow in the CSS.
- *Please update zoning table to acknowledge minimum lot size of 5 acres (for conditional uses).*
 - Response: An updated zoning table is attached.
- *Per zoning, maximum building length for a conditional use is 300 feet for buildings or portions of buildings exceeding the maximum applicable height allowed under the permitted use. However, the application and site design assume a non-applicable maximum length of 450 feet.*
 - Response: The portion of the building exceeding the maximum applicable height allowed under the permitted use has been reduced to 300 feet. Please see the revised site plans uploaded to Eplan.
- *Please provide spot grades and/or graphic regarding average grades and your calculations of building height.*
 - Response:
 - Please see the attached graphic illustrating the average grades used for the building height calculation.
 - The average existing grade, taken at the proposed building corners, is 12.65 feet. The maximum building parapet height above 12.65 feet is 73'-10".
 - The solar panels that will be mounted on the roof will be within 6-8 inches of the roof plain, and below the parapet.
 - The solar inverters mounted on the rooftop will be installed such that the highest obstruction will be at or below 75'-0".
- *Please note the required 90-foot view corridor on the site plan or another appropriate plan.*
 - Response: The 90-foot view corridor has been added to the site plan.



- *Part of the building is within the Flood Zone A2 (EL 10), as is the access road. A Flood Hazard Development Permit for New Construction must be provided with the building permit application.*
 - *Response: A Flood Hazard Development Permit for New Construction has been submitted under separate cover.*
- *Please note that under Section 14-450.8 (g), for new nonresidential construction in an A2 zone, the lowest floor must be elevated above the base flood elevation of 10 feet and/or be flood-proofed to at least two feet above the base flood elevation.*
 - *Response: The lowest floor, at 14.0 feet, is set more than two feet above the base flood elevation of 10 feet.*

Overarching Comments

- *As noted below (transportation) impervious and paved surfaces should be minimized. Where reduction is not possible, please explore feasibility of permeable pavements. Staff understand a very large installation of this material exists elsewhere on the IMT lot, adjacent to this site.*
 - *Response: The pavement limits shown on the plans represent what is needed for the facility to operate effectively and safely. The use of permeable pavements was considered, but discounted, due to maintenance requirements and concerns with the long-term durability in this particular application and in the Maine climate.*
- *Expected timelines are requested regarding necessary state, federal, and utility approvals, especially:*
 - *FAA determination that “structures and equipment will not exceed the applicable height guidelines for the runway approach and will not create a hazard to navigable space”.*
 - *PWD capacity to serve letter (please note DPW wastewater capacity letter has been received).*
 - *Response: A Notice of Proposed Construction or Alteration (Form 74601) will be submitted to the FAA, and the response provided to City staff as soon as it is received. We are working with PWD on ability to serve and will provide their response as soon as it is received.*
- *Please be prepared to provide an updated option to ground lease agreement if necessary, per timing of review and Planning Board scheduling.*
 - *Noted.*

Transportation Comments

- *Per the consulting traffic engineering reviewer, the applicant shall conduct a trip generation analysis for the entire IMT site over the last 10 years. The site does not have a Traffic Movement Permit and incremental development considerations may cumulatively trigger the need for a TMP. Based on prior applications, it is likely that a TMP will be required.*
 - *Response: We are reviewing with the State Traffic Engineer to further understand whether this project is subject to incremental development considerations. A response to this comment will be submitted under separate cover.*
- *There is no sidewalk proposed along the project frontage. A sidewalk waiver is required. The waiver requirements are outlined in Section 14-501 of the City Code. If a sidewalk is provided, then an acceptable, ADA-accessible driveway crossing must also be provided. If a sidewalk is not provided, a contribution (separate from required impact fees) will be sought for nearby sidewalk and/or path facilities.*



- Response: Please see the attached updated Waiver Table for the sidewalk waiver request.
- *The driveway opening onto West Commercial Street is much larger than the maximum permitted under the Technical Manual (30 feet). DPW understands that this facility will require right turns both into and out of the site by large vehicles, and has reviewed turning templates from a previous submission that justify the large driveway opening. The Applicant must apply for a driveway width waiver as part of their application.*
 - Response: Please see the attached updated Waiver Table for the driveway width waiver request.
- *Updated turning templates showing the design vehicle entering and exiting the site using the newest site plan should be submitted for DPW review. Please note, a turn template submitted with this application was reviewed. Regarding those runs:*
 - *Runs should show trucks entering and exiting the site to justify the width of the driveway and inform the locations of alternate pavement material (or hatch markings, as previously proposed). A vehicle existing the parking area to the driveway would also be helpful.*
 - *Runs should show that all proposed pavement is necessary.*
 - *Within the site, entering and exiting vehicles will yield to one another. The site design should not assume that two turning vehicles should be able to pass one another in opposite directions. Please provide design controls/assumptions about how vehicles interact within the site.*
 - *Entering the parking spaces, the run shown does clarify that the drive aisle width appears to be useful, but the model entering the space in a crooked manner does not appear to justify a 25-foot space width. An extra forward-backward maneuver can likely correct this angle.*
 - *The provided run does not show how a vehicle would enter and exit a space south of the deadhead area (the wider area where the truck maneuvers into before backing up. Please clarify how the spaces south of that which is backed into work; it appears as though each space becomes progressively more difficult moving southward.*
 - Response: Please see the attached truck turning movement figures.
- *While DPW understands that a wide driveway is required, efforts should be made to guide smaller vehicles entering the site and discourage fast turns, which can be unsafe, especially for pedestrians crossing the driveway or crossing West Commercial Street. The current site plan shows a hatched striping that limits the northbound direction of the driveway to 24 feet. DPW suggests that this treatment be extended, narrowing the drive lanes in each direction to 12 feet. The applicant should also consider using a more durable and tactile material than paint, such as scored concrete, as paint will wear out quickly and does not provide any feedback to motorists.*
 - Response: The proposed drive lanes have been limited to 12 feet with striping. The applicant wishes to continue using striping to delineate this area, to minimize cost and construction impacts to the intersection.
- *The 104-foot width of the end of the driveway, closest to the proposed structure, should be justified or reduced.*
 - Response: The extents of the pavement are required for the safe maneuvering of trucks into and out of this facility and the adjacent IMT yard.



- *The passenger parking area has 20-foot parking stall lengths. These stall lengths should be justified or reduced to 18 feet.*
 - *Response: The parking stall lengths have been reduced to 18 feet.*
- *The area on the northeast side of the site, where the crosswalk is shown to be re-striped, adds additional pavement south of existing pavement to remain. The applicant should specify the use of the existing-to-remain portions of the site with respect to the proposed project, and make efforts to reduce pavement area where possible. In this location, the crosswalk appears to cross a swath of existing and proposed pavement that is about 83 feet wide.*
 - *Response: The extents of the pavement are required for the safe maneuvering of trucks into and out of this facility and the adjacent IMT yard.*
- *The proposed site plan shows about 25 truck parking spaces, each measuring about 25x55, with a 91-foot drive aisle for a total pavement width of 201 feet. DPW does not have standards for truck parking such as this and would support a waiver for parking space and drive aisle size if they can be justified. While parking stall length appears appropriate at 55 feet, the stall width seems excessive, over 2.5x the size of a typical passenger vehicle stall. The drive aisle serves as a maneuvering area and extra width is justifiable, but the Applicant should provide justification (turning movements or otherwise) for the size of the drive aisle and stall width. Large vehicles access narrower loading docks in the urban areas of Portland with significantly less maneuvering space. Any reduction in these dimensions can help reduce the amount of impervious surface at this site, which would in turn reduce effects on stormwater, reduce snow removal burden, reduce heat island effects, and would likely reduce project costs significantly.*
 - *Response: The truck parking space widths at the loading docks are 14 feet, as determined by the loading dock door spacing and as requested by the owner/operators of the facility. The truck parking spaces are 12 feet. These are standard dimensions and facilitate safe maneuvering into and out of the spaces. We will prepare a waiver request if required, but to our knowledge there are no truck parking requirements in the Ordinance. Please clarify to which section of the Ordinance the waiver should be requested.*
- *A 24-foot access aisle provided around the back of the building appears to be a secure area leading to the IMT site east of the project site. This access aisle has entrances from both the passenger vehicle parking lot and the heavy vehicle parking lot; however, it does not appear that the access road is designed to accommodate heavy vehicles turning into or out of the access road. The access road also appears to be redundant behind the proposed cold storage facility; any vehicle entering at the western gate could presumably also do so at the eastern gate. The applicant notes its use for Fire Department vehicles, but eliminating this access road may eliminate 17,000+ SF of impervious surface and several drainage structures. The applicant should justify the need for this drive or examine potential reductions.*
 - *Response: Please see the attached truck turning figures for fire truck access to the rear of the building. The gates will be equipped with a "knox" box to allow emergency access. The drive will also provide a secondary emergency access to the Unifit Facility to the east. We believe this road is required for fire department access to the rear portion of the building.*
- *The project site includes two van-accessible parking spaces on the west side of the site, which adequately meet requirements based on site's passenger vehicle parking supply. Truck parking spaces need not figure into the ratio of required accessible parking spaces, per ADA. The accessible spaces should be designed to ADA standards (8' x 18' minimum, 8-foot buffer (for van spaces), maximum 2% slope in all directions within the buffer).*



- Response: The ADA spaces have been designed to the 8'x18' standard, with 8-foot access aisle and maximum 2% slopes. A detail has also been added to the plans.
- *The design of ADA ramps is not noted on the Grading and Drainage plans, nor is a detail provided. A curb ramp detail is requested for all ramp types on the site.*
 - Response: Standard details for the ADA ramps are included in the attached revised plans.
- *Bike hitches should be placed convenient to entrance(s) – currently they appear to be located based on the parking lot placement.*
 - Response: We have relocated the bike racks to be more proximate to the main entrance.
- *Snow storage areas appears to omit the access road – please clarify intentions if access road is proposed to remain.*
 - Response: Additional snow storage areas for the fire access road have been identified on the revised site plans.
- *Instead of requesting a waiver of the City requirement for a TDM plan, please submit a simple document adequately focused on and scaled to the unique aspects of this project.*
 - Response: We understand that a TDM plan is required for the following types of development:
 - All Level III development in the B7 Zone
 - All commercial or institutional uses of 50,000 SF or more of total floor area
 - All commercial or institutional uses designed to accommodate 100 or more employees

While this project meets the second criteria (>50,000 sf or more of total floor area), most of the space is warehouse use. The total expected employee count is less than 25 employees, and we do not believe a TDM plan is necessary for this project in this location. We respectfully request reconsideration of the waiver request.

Water Quality, Stormwater, Infrastructure & Public Safety Comments

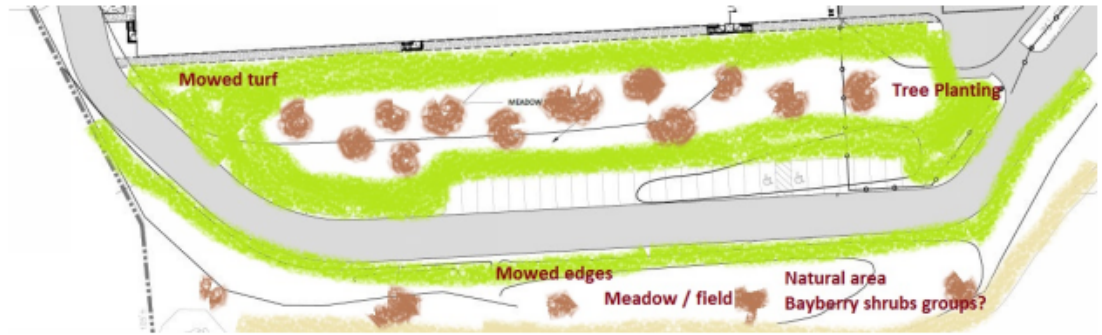
- *A third-party civil engineering review memo is attached. Please review and respond.*
 - Response: Please see responses to the third-party review memo below.
- *The large area of loam and seed south of the proposed structure and north of the access road appears to be unprogrammed space. The applicant should consider using this area for storage of stormwater and pretreatment prior to the R-tank, and/or using this area to plant trees to screen the blank south-facing wall from the waterfront.*
 - Response: This area may be used for future expansions of the building, and as such it is not desirable to encumber with landscaping and stormwater treatment structures. Plantings have been added to the river side of the access road, to help screen the building from the waterfront.
- *Please clarify if the site will be gated and/or relevant security protocols.*
 - Response: Only the access road to the rear of the building will be gated, and a “knox” box included for emergency access. The remainder of the site will not be gated.
- *An additional hydrant must be provided. Please see attached site plan markup indicating location.*



- Response: The additional hydrant has been added as requested. See attached revised utility plan.
- *Any photovoltaic arrays will need to meet the requirements of NFPA 1 Fire Code 2018 edition for roof coverage, and other applicable sections. Please submit a layout plan.*
 - Response: A PV layout has been provided as requested. The roof plan depicts access in two directions through the middle of the array layout as well as around the entire perimeter. This will allow both general PV service as well as allow safe fire fighter access and logical ventilation options should the need arise. Proper identification and electrical warning signage will be provided at all inverter and conduit run locations. Roof access has been provided within the building through a combination of roof access stairs and ladders. Walk pads define safe paths of travel on each roof area. It is the full intent to provide a layout that fully conforms with all applicable codes. It is expected that this layout would be further reviewed for final approval during the construction permitting process.
- *Please acknowledge presence of photovoltaic arrays on site plan and/or utility plan.*
 - Response: The Utility Plan has been updated to include the location of the PV array. Details of the array are shown on the Architectural plans.
- *Please specify procedures for trash storage and removal (staff acknowledge the compactor present on the site plan).*
 - Response: Trash will be staged inside the loading dock area if necessary, before loading into the compactor, or loaded into the compactor directly, depending on the quantity. A private, licensed, municipal waste hauler will be contracted for emptying of the dumpster regularly.

Environmental Quality Comments

- *(See image below). The City Arborist suggests a grove of trees on the water side of the proposed building to screen the facility from the bridge, South Portland and the harbor. If a mowed lawn around building and pavement edges is desired the grove of trees could be placed in the proposed meadow area. Tree types could be White Spruce, Serbian Spruce, River Birch, or Red Oak.*
 - Response: We have added trees on the outside of the perimeter driveway, along with shrub masses as requested in the comment below. This location will allow future expansion of the Cold Storage Building without removing/ replacing the proposed trees.
- *(See image below.) Yearly mowing should be considered to keep the proposed meadow area from growing into brush. Along the water edge, Bayberry shrubs in groups of 3, 5, 7 spaced out along the shoreline are suggested.*
 - Response: We have added planted groupings of bayberry shrubs along the outside of the perimeter driveway, in addition to groves of native trees, which will soften the building from the waterside. We anticipate the meadow will be mowed 1-2 times per year to keep brush and invasive plants from establishing.
- *Parking exceeds fifty spaces, which is a threshold per site plan requirements for 2+ trees (or 1 tree + 3 shrubs) per 5 spaces in landscaped islands.*
 - Response: There are 30 parking spaces for automobiles on the west side and parking for 12 trailers on the east side of the facility. At a rate of 2 trees / 5 spaces there would be a requirement of 12 trees on the plan. The Landscape Plan provides for 52 trees, which exceeds the landscape requirement.



Site Design Comments

- A design review memo is attached. Please review and respond.
 - Response: Please see responses to the third-party review memo below.

Initial Review Comments from Wright-Pierce from memo dated April 14, 2020

As site design has advanced since our previous submission on March 13, 2020, several changes have been made to the site that impact the stormwater management design, including modifications to the limit of work and redevelopment area, changes to impervious area from reconfiguration of sidewalks, concrete equipment pads and adjacent landscaping; relocation of the subsurface R-Tank storage system and treatment device; and modifications to the storm drainage pipe network. The attached Stormwater Management Report Revisions Letter includes a more detailed summary of these revisions and updated water quality calculations.

Basic Standard

- Erosion and Sedimentation Control best practices were observed on the Erosion and Sediment Control Plan and associated Details. An Inspection, Maintenance, and Housekeeping Plan has been provided with the erosion details and notes. Catch basin inlet protection should include catch basin throat protection where applicable.
 - Noted.

General Standard

- The applicant has provided an impact analysis to compare pre-development and post-development land use pollutant rankings under MaineDEP redevelopment guidelines. The written analysis indicated that the proposed development had a lower pollutant ranking than the existing site and is therefore required to treat 60% of the proposed site's disturbed surface area. A summary of pollutant rankings was provided and reviewed, and the proposed pollutant rankings are agreed to.
 - Response: As previously mentioned, pollutant impact rankings for the proposed and existing site were recalculated due to changes to the site and stormwater management system design. Based on the revised water quality calculations, the proposed project continues to be required to provide treatment for 60% of the redevelopment area.
- High-pollutant surface areas should be prioritized for stormwater treatment under the redevelopment standard. The Applicant has provided a summary indicating that the majority of treated area is impervious. Please provide a discussion on how much of the surfaces with pollutant ranking 4 are receiving treatment, and a statement on site practicality requiring treatment of lesser-ranked surfaces.



- Response: Higher pollutant ranking areas (Rank 4 and Rank 3) will be captured and treated in their entirety (medium use road, medium use parking and flat roof), with exception to a few segments of the fire access road, which is not anticipated to see much traffic. Approximately 85% of the redevelopment area will be captured and the proposed stormwater management system will treat a volume of stormwater greater than the required water quality volume.
- *An executed maintenance contract for the BMP systems is required. Maintenance agreements may be provided as a condition of approval.*
 - Noted.

R-Tank and Jellyfish Filter

- *A letter from the manufacturer(s) stating the proposed project was designed in accordance with the MaineDEP standards is required for proprietary treatment devices. Please provide this information.*
 - Response: A letter demonstrating that the design of the stormwater treatment system has been reviewed and approved by the manufacturer is attached.
- *Site grading proposes no access of flood waters to catch basins in the 100-year flood elevation, no further action necessary.*
 - Noted.
- *R-Tank is designed with consistent elevations in HydroCAD, Site Plans, and Details. Please provide the number of R-Tank modules (length by width) on the Grading, Drainage Plan, and Erosion Control Plan to confirm the proposed layout matches the plan. Module height has been provided.*
 - Response: Additional R-Tank information, including a module layout, is provided in the revised civil design plans.
- *R-Tank location appears to be within heavy truck area. Information on minimum depth of cover is proposed on the detail, but is not noted to meet loading criteria of the proposed trucks. Please provide information from the manufacturer indicating that the proposed system can sustain expected traffic loading.*
 - Response: The R-Tank Storage system was relocated south of the proposed building under the fire access road to reduce traffic and loading impacts. The fire access road will only see occasional maintenance traffic, or rare, emergency traffic. The R-Tank module type was selected per manufacturer recommendation based on proposed loading.
- *A note indicating a valve at the stormwater outlet was provided, but was not observed. Please provide a detail for the stormwater outlet restrictor, or confirm where the detail is located in the plan set.*
 - Response: The note was modified to include more specific information on the valve type.
- *Plans call for a 24" Jellyfish filter outlet, and the HydroCAD shows a 30" outlet. Please review.*
 - Response: The HydroCAD model is now consistent with the revised Grading & Drainage Plan.



Flooding Standard

- *The applicant has requested a waiver to the flooding standard, on the basis that the project conveys flows to a tidally influenced waterbody. The basis of this waiver is justified and supported by the reviewer.*
 - Noted.

Grading and Drainage

- *Applicant has noted that Maine Construction General Permit is required for the project due to the extent of grading.*
 - Noted.
- *Applicant has noted the Owner is a participant in the VRAP through the MaineDEP, and that soil management plans will need to be developed and approved through the MaineDEP.*
 - Noted.
- *Typical details, or a note on the grading plan, should show a maximum 2% cross-slope for crosswalks.*
 - Response: Notes have been added to the Grading and Drainage Plan.

Utility Connections

- *Ability to serve letters have not been provided for utilities impacted by the proposed project, but have been requested by the applicant for applicable utilities. The applicant has indicated that ability to serve letters will be submitted to Planning upon receipt.*
 - Response: We are working with PWD on ability to serve and will provide their response as soon as it is received.
- *Standard design for the water and fire system has been provided. Adherence to PWD standards is typically provided by the water utility for water connections, and would be addressed in an ability to serve letter and acceptance through PWD.*
 - Noted.
- *Standard design for the electrical and gas and electric utilities has been provided.*
 - Noted.
- *Planting impacts to utilities: Several plantings are located over underground utilities near the transformer and generator pad. It is appreciated that these areas require screening. Please confirm how the design incorporates mitigation or prevention for roots impacting underground utilities, while also providing required screening.*
 - Response: Proposed shrub and tree plantings in the vicinity of the transformer and generator have been selected to provide shallow root systems, and will be planted to avoid any underground utilities in the adjacent area.

Comments from Caitlin Cameron from memo dated April 2, 2020:

Lighting

- *Applicant has provided a photometric plan, cut sheets, analysis. Minimal amount of building lighting is provided that would be visible from the residential neighborhoods. All fixtures appear to be full cut off, and mounted low on the building or under canopies so as not to produce glare for vessels or neighboring residential properties.*
 - Response: Please see attached revised site lighting and photometric plans.



Signs

- *Signs will come under separate permit application according to Sign Ordinance in Division 22.*
 - Noted.

Design and Visual Character

- *Long Views/Building Design: Change in roof form provides some visual interest to meet the standard. Rooftop mechanicals are placed on a lower portion of the building to reduce visibility from long views and are screened. PV panels and roof drainage systems have low profiles. Massing variation provides some variation and scale to the overall form.*
 - Noted.
- *Massing: Massing emphasizes uses with a smaller-scale, one-story portion of the building at the ROW interface that indicates the active portions of the building and street-facing entrances.*
 - Noted.
- *Façades – equal treatment: All façades include equal treatment of materials and openings. The roof form is somewhat varied. Materials are placed according to massing and break up the scale of the building from some perspectives. Two of the façades have no massing or material variation with minimal openings and no articulation other than stoops at the entrances.*
 - Response: The southern and western elevations are two of the four main cooler partitions. Administrative support space and loading dock areas have been wrapped around the northern and eastern sides to assure proper functionality for site circulation as well as to address internal space layout demands. This in turn breaks up the form on the two most prominent building façades. Additional form development on the two remaining sides would either require the addition of unused space or require a height change within the cooler reducing the required number of pallet positions. Please refer to the following response for further comment and design intent.
- *Façades – variation and articulation: Project provides some visual interest with varied roof line and massing, change in material texture, windows, canopies, roof drains. Two of the façades have no massing or material variation with minimal openings and no articulation other than stoops at the entrances, roof drains.*
 - Response: The design intent is to break up these large portions of wall area by incorporating a horizontal panel break line that wraps around the south and west elevations. To better accent this change, a two-color panel concept is being proposed. This will break up the wall area, add interest to these two elevations and help tie the building together as the colors continue to wrap around the primary façades. The current building elevations and renderings reflect this revision.
- *Scale and Articulation: Project meets articulation requirement with canopy, entrances, and fenestration. The building also includes massing variation/stepbacks at the street-facing façade.*
 - Noted.

If you have any questions or require additional information, please do not hesitate to contact me at (207) 558-3662 or by email at dstairs@woodardcurran.com.

Sincerely,

WOODARD & CURRAN INC.



A handwritten signature in blue ink, appearing to read 'D. Stairs', is placed over the company name.

Darrin Stairs, PE
Project Manager

Enclosures: Revised Civil, Architectural and Landscaping Design Plans (uploaded to Eplan)
Revised Architectural Renderings (uploaded to Eplan)
Revised Site Lighting Report, Photometric Plans and Site Lighting Plan
Stormwater Management Report Revisions Letter and Attachments
Updated Waiver Table
Updated Zoning Table
Flood Hazard Development Permit (submitted under separate cover)
Building Height Figure
Turning Movement Figures
IFWS Review Response Letter
Geotechnical Report

Att. W

Via Electronic Mail

June 10, 2020



Department of Planning & Development
Attn: Christian Roadman
City of Portland
389 Congress Street
Portland, ME 04101

Re: Maine International Cold Storage Facility Neighborhood Meeting Certification

To Whom It May Concern:

I, Darrin Stairs, PE of Woodard & Curran, hereby certify that a neighborhood meeting was held on June 10, 2020, via an online meeting platform (Zoom), at 5:30pm regarding the Level III Site Plan Submittal for the proposed Maine International Cold Storage Facility project located at 40 W. Commercial Street.

I also certify that on May 29, 2020 invitations were mailed to the following:

1. All addresses on the abutters list provided by the Planning Division which includes property owners within 500 feet of the proposed development.
2. Residents on the "interested parties" list.

Sincerely,

WOODARD & CURRAN INC.

A handwritten signature in black ink, appearing to read "D. Stairs", is written over a horizontal line.

Darrin Stairs, PE
Project Manager

Attached to this certification are:

1. Copy of the meeting notice sent
2. Attendance sheet
3. Meeting Minutes

Dear Neighbor:

Please join us for a neighborhood meeting to discuss plans for a cold-storage facility.

Meeting Location: visit <https://tficapital.com/micsf-neighborhood-zoom-meeting-registration/> to register to receive a Zoom invitation

Meeting Date: Wednesday, June 10th, 2020

Meeting Time: 5:30pm, EST

The city code requires that property owners within 500 feet (1000 feet for proposed industrial subdivisions and industrial zone changes) of the proposed development and residents on an “interested parties list”, be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be take. Both sign-in sheet and minutes will be submitted to the Planning Board.

If you have any questions, please call
207-650-0773.

Sincerely,
Andrew Nelson

Treadwell Franklin Infrastructure

40 Forest Falls Drive, Suite 2
Yarmouth, ME 04096



Maine International Cold Storage Facility



Maine International Cold Storage Facility Public Neighborhood Meeting, June 10, 2020

First Name	Last Name	Email
------------	-----------	-------

Members of the Public in Attendance

Aaron	Porter	aaron.porter@proboat.com
Bob (Robert)	Mittel	rmittel@mittelasen.com
Carl	Cramer	carl1cramer@gmail.com
David	Smith	smitti79@gmail.com
Jeff	Irish	jeffrey.irish@graybar.com
Jo	Coyne	jcoyne@gwi.net
Karen	Sarfaty	Salem St.
Katherine	Searles	Stetson Ct.
Mark	McCain	walworthmccain@maine.rr.com
Melissa	Wood	melissafwood@gmail.com
Nathan	Boutin	nathan.boutin@graybar.com
Pamela	Shaw	pskhrrmail@gmail.com
Rosanne	Graef	rgraef@gwi.net
Sidney (Pete)	Thaxter	saintfelix2nd@gmail.com
Sonia	Robertson	robertsonsonia@hotmail.com
Tasha	Binette	tlaroche@nehsc.org
Tom	Robinson	thom.robinson@gmail.com

Development and Consultant Team Members in Attendance

Abraham	Weiner	abe.weiner@huntcompanies.com
Andrew	Nelson	anelson@tficapital.com
Darrin	Stairs	dstairs@woodardcurran.com
Diane	Vatne	diane.vatne@sewall.com
Eivind	Dueland	eivind.dueland@amberinfrastructure.com
Eric	Carlson	ecarlson@woodardcurran.com
Felicia	Knight	felicia@knightcanney.com
George	Campbell	gcampbell@tficapital.com
Guy	Lebrecque	glabrecque@cwsarch.com
Jedd	Steinglass	jsteinglass@woodardcurran.com
Jon	Nass	jon.nass@maineports.com
Kay	Rand	kayrand2018@gmail.com
Matthew	Dieterich	matthew.dieterich@sewall.com
Patrick R	Arnold	parnold@solidginc.com
Tom	O'Shaughnessy	tom.oshaughnessy@amberinfrastructure.com

Maine International Cold Storage Facility Public Neighborhood Meeting Minutes

The meeting for the neighborhood within 500 feet of the proposed Maine International Cold Storage Facility (and interested parties) was held on June 10, via Zoom, from 6-7:37 p.m.

The Zoom meeting was opened at 5:30 to allow any issues with the technology to resolve themselves prior to the scheduled start of the meeting.

Kay Rand, Outside Board Member of Sewall Company, welcomed the participants to the meeting and reviewed the logistics that would allow participants to ask questions after the presentations were complete, either by using the Zoom “raise your hand” feature, or by sending questions via Chat, or simply unmuting and posing the question. Ms. Rand also informed the participants of the tentatively scheduled workshop before the Planning Board for June 23.

Andrew Nelson, one of the owners of Treadwell Franklin Infrastructure, briefly introduced the Maine International Cold Storage Facility (“MICSF”) project, describing its purpose, the types of products that would be stored and the types of customers to be served, the intermodal nature of the facility (ship, truck, rail), the connection to EIMSKIP and the Maine Port Authority, the impact of COVID-19 on the need for cold storage, and the development team’s commitment to sustainability and resiliency.

Mr. Nelson then outlined all the members of the development team, including:

- Eimskip
- Amber Infrastructure
- Treadwell Franklin Infrastructure
- Maine Port Authority
- Sewall Company
- Woodard & Curran
- Sterling Solutions
- CM at Risk (to be determined)
- Operator (to be determined)
- Construction Contractors/Subcontractors (to be determined)

Mr. Nelson introduced Jedd Steinglass of Woodard & Curran who outlined the presentation to follow of the civil and site design and the architectural design of the MICSF. Mr. Steinglass introduced Darrin Stairs of Woodard & Curran to address the civic and site design components of the MICSF.

Mr. Stairs oriented the participants to the location of the MICSF; reviewed the existing conditions of the project site, then took the most time describing the proposed conditions of the site, including orientation of the building on the site; traffic analysis; landscaping, floodplain

management, and other site features such as the loading bays and truck parking areas. Mr. Stairs informed the participants that the design team is considering adding a gatehouse to control access to the loading dock area and that this feature will be available for review/discussion during subsequent planning board workshops.

Mr. Stairs introduced Guy Labrecque of CWS architects, a subcontractor to Woodard & Curran, who reviewed the architectural features of the building.

Mr. Labrecque reviewed the proposed floor plan, showed building elevations (north, south, east and west); described the materials to be used on the outside of the building; stated that the maximum height of the building will be 73 ' 10", showed the location of the building from a map of the waterfront zone, then shared aerial views of the building from several perspectives: looking southwest, looking from Memorial Park, looking from Commercial Street at a pedestrian level; looking from Beach Street at a pedestrian level; looking east from Commercial Street, and looking across the water from Thomas Knight Park in South Portland.

Mr. Labrecque introduced Abe Weiner of Amber Infrastructure who discussed the solar array that is proposed for the roof of the MICSF. The array will contain over 1600 modules, be sized at 664 kWdc, and produce 828,700 kWh of electricity annually.

Ms. Rand then opened up the meeting to questions from the participants.

Question 1: Right now, we have a long line of semis idling at Emskip. Will this facility take care of that noise?

Answer 1: Trucks will arrive by appointment only. Overall, there will be a reduced impact of noise. Trucks will come directly from IMT to cold storage by appointment, and will be more spread out. A good portion of the noise will be kept internal to MICSF.

Question 2: Currently, we hear back up beeps from trucks starting at 6 AM. Can this be delayed until 7 AM?

Answer 2: Back up beeps are necessary safety requirements for trucks. The operation of the facility will conform to the City's noise ordinances. This is a question best answered by the operator.

Question 3: Will there be noise associated with the cooling system?

Answer 3: The cooling equipment will be internal; therefore the noise will be kept inside. There are no doors or windows to speak of in that room, and the robust insulation will dampen the sound.

Question 4: What is the current planned offset from solar?

Answer 4: We expect that it will be around 20%. We won't know the exact figures until the end of the project, but this percentage will be in the final specs.

Question 5: The height of the building has been controversial in the past. Why has the building been made so tall?

Answer 5: The building maximizes the product storage opportunities that the facility can provide as well as efficiency in construction costs.

Question 6: What is the expected construction time?

Answer 6: Construction should take 1 to 1 1/2 years to complete.

Question 7: The building is about the size that Eimskip was considering previously, correct?

Answer 7: Yes.

Question 8: Initial projections I read were that the building would be at 40% capacity once finished. Is that still the case?

Answer 8: We plan to have the facility more full than that, but bear in mind that there will be a ramp up over time. This will be private development on public land. This facility grew out of Eimskip's needs, so that was the focus of our analysis; the building needs to provide for Eimskip's needs first and foremost.

Question 9: What about the soil? Is this a Superfund site?

Answer 9: This land has been used industrially for 100 years. It is in a managed condition; environmental management is part of the construction design and the DEP and EPA will review these management plans.

Question 10: What about the people who live downwind from construction? Do we need to worry about dust?

Answer 10: Dust will be managed; it is a requirement for construction.

Question 11: Is there any public financing of this project? I understood that \$8 million was needed from the public.

Answer 11: The Maine DOT is putting in \$7.4 million to ready the site for leasing to TFIC/Amber. TFIC/Amber will pay this money back over time through a land lease.

Question 12: Should the state be fronting this money during the COVID-19 pandemic?

Answer 12: Maine has been working on this project for a long time and the need for cold storage worldwide, and in Maine, has only increased due to the COVID-19 pandemic.

Question 13: The state spent \$60 million to keep Eimskip in the port. Does Eimskip have equity in this project?

Answer 13: Yes. You will see at the top of the organizational chart that Eimskip is one of three members of the consortium leading the project as bid lead/sponsor. Eimskip is the market facilitator, as its customers will be the ones leasing space in it. The percent of the facility that will be used by Eimskip and its customers has not been finalized yet.

Question 14: When will TFIC/Amber make a final decision on sponsoring the project?

Answer 14: The decision will be made immediately after information has been received from Sterling; these cold storage experts are performing due diligence right now. Already, a letter of intent has been signed on the land lease.

Question 15: Is it possible that Amazon or another huge corporation will come in and take over the facility?

Answer 15: No, it is not possible for a huge corporation like Amazon to come in and serve the port; serving Eimskip is the top priority. The cold storage facility is all part of a larger port strategy for the state.

Question 16: Is there a two-way agreement, or can Eimskip leave and go to Boston, for example?

Answer 16: This project is not easily re-created. Eimskip would lose a lot of money if they decided to relocate. There is also a shortage of cold storage in the entire country. TFIC plays a small part in a much bigger picture, and is comfortable with Eimskip's commitment to the project.

Question 17: Mr. Labrecque spoke about bringing things down to a human scale, especially in the front of the building, but there's almost no landscaping there even though that's the side the neighborhood will have to view. Tall trees in front would go a long way to break up the sleekness. Is that possible?

Answer 17: Mr. Labrecque will take this request into consideration.

Question 18: What customers are we looking at?

Answer 18: This is a huge opportunity for Maine producers.

Question 19: Will the ammonia refrigeration system be high charge or low charge?

Answer 19: It will be a medium charge system.

Question 20: Can there be more screening on the East end where the trucks are to keep noise down - more trees? An attractive fence?

Answer 20: The designers will take a look, but there are limited opportunities due to the size of the parcel.

Question 21: Could you please talk more specifically about the involvement of rail?

Answer 21: This will be a true multimodal facility. Rail is part of the plan, but its use will depend on the needs of customers.

Question 22: How many 18 wheelers a day will be moving up and down Commercial Street?

Answer 22: There will be about 70 trucks per day; 75% of these will come in the morning (about nine per hour), and 25% will arrive in the afternoon, all by appointment only.

Question 23: What is the best case scenario to start construction?

Answer 23: Permits need to be obtained first, and these are now in the process of review by the City. We anticipate a public hearing in late July, and we hope to have the site permits at the beginning of August, allowing construction to start in September.

Question 24: Who will be the construction manager?

Answer 24: We are in the process of identifying a construction manager.

Question 25: Can you tell us who you are interviewing?

Answer 25: We are going through an official procurement process and interviewing a large number of companies.

Question 26: We have been promised many times that the City will provide a traffic study of the impact of all recent development on all of Commercial Street. Do you know where that stands? Are you aware that there will be three buildings under construction at the same time in this area?

Answer 26: We are meeting with the transportation committee tomorrow and can ask about it. Each of the projects planned in the area are required to have an approved construction management plan. Staging for the Cold Storage Facility will be on site.

Question 27: Are all aspects of design complete? If not, where are you percentage-wise?

Answer 27: The architectural design is 95% complete. Other design is 85% complete.

Question 28: Can you give us assurance that trucks will not be left idling, especially overnight?

Answer 28: The goal of the design was to have the trucks unloaded immediately. Trucks will arrive on a set schedule by appointment only so we can control how many trucks come at once. Once the semis enter the loading bay, they will be sealed and the truck refrigeration units can be turned off.

Question 29: Will the operating contract enshrine this?

Answer 29: This information will not be explicitly stated in the permit, but it is in the submittal of documents already sent to the City and available on their website for inspection by the public.

Question 30: But these are not binding?

Answer 30: I am not an attorney, but I don't think so.

Question 31: Regarding the operator, Andy, what's your experience?

Answer 31: TFIC and Amber specialize in infrastructure. Amber has the resources. We put together the Port Everglades (Florida) cold storage facility, which is a much larger facility than this one, but there, we are the owners. We brought in experts to plan different components, such as Sterling for the cold storage unit. For the Maine International Cold Storage Facility operator, we want to find a strategic partner for the long term. TFIC will be a permanent part of this project.

Question 32: Re: Traffic. There is a lot of new construction occurring simultaneously in this neighborhood. We're also concerned with impact on neighborhood streets...not just during construction but ongoing, as commuters try to avoid increased truck traffic. Any thoughts?

Answer 32: We have a traffic meeting tomorrow with city representatives to scope out the traffic impacts of the project and will know more after that meeting.

Question 33: You mentioned some possible fencing and a guard shack; will this be at odds with the scheduled flow? Can you put this on the drawing?

Answer 33: Yes. Queuing was part of the traffic analysis. We intend to move the trucks in and out as quickly as possible, and not have them stay in the yard for long. The guard shack and fencing will be shown on subsequent drawings and renderings.

Question 34: How many construction management companies are being considered for build proposals? Can you share the names of these companies? If not, what is the reasoning for the lack of transparency at this time?

Answer 34: MainedOT and TFIC are working through this process and are considering several companies, including Woodard & Curran. Due diligence, the site plan, and construction management are all being evaluated at the same time. We are in the middle of a process that needs the blessing of the Maine DOT and the MPA.

Question 35: Are offices going to be on the top floor?

Answer 35: Yes, but the entire facility is only one level.

Question 36: Will there be offices for rent, or are the offices only intended for the operators?

Answer 36: They are intended for the operator.

Question 37: What is Eimskip current volume of frozen produce in an out?

Answer 37: Andy Nelson will try to find out; we do not have this information.

At the conclusion of the meeting, Kay Rand let everyone know that the notes from this meeting would be a matter of public record. If anyone had any further questions, Andy Nelson's phone number was on the card they received in the mail.



MAINE INTERNATIONAL COLD STORAGE FACILITY

Site Location of
Development

41 Hutchins Drive
Portland, ME 04102
800-426-4262

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

0232277.00
**Maine International Cold
Storage Facility, LLC**
March 2020

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February 28, 2020

City of Portland
Planning Board
389 Congress St, 4th Floor
Portland, ME 04101

Re: Maine International Cold Storage Facility – Authorization for Permitting

To Whom it May Concern:

On behalf of Maine International Cold Storage Facility, LLC, Woodard & Curran is authorized to apply for Planning Board approval for the proposed Maine International Cold Storage Facility to be located at approximately 40 West Commercial Street in Portland. Furthermore, Woodard & Curran is authorized to act on behalf of Maine International Cold Storage Facility, LLC throughout the permitting process.

Should you have any further questions, please do not hesitate to contact me at Tom.Oshaughnessy@amberinfrastructure.com

Regards,



Tom O'Shaughnessy, President Maine International Cold Storage Facility, LLC

Department of Environmental Protection
Bureau of Land & Water Quality
17 State House Station
Augusta, Maine 04333
Telephone: 207-287-3901

FOR DEP USE
ATS # _____
L- _____
Total Fees: _____
Date: Received _____

FORM A PAGE 1

SITE LOCATION OF DEVELOPMENT PERMIT APPLICATION 38 M.R.S.A. §§481-490

PLEASE TYPE OR PRINT IN *INK ONLY*

This application is for: (CHECK THE ONE THAT APPLIES)		☐ 20 acre development	☐ Marine Oil Terminal	☐ Major Amendment
		☐ Planning Permit	☒ Structure	☐ Minor Amendment
		☐ Metallic Mining	☐ Subdivision	
1. Name of Applicant:	Maine Intl. Cold Storage Facility, LLC	6. Name of Agent (if applicable):	Woodard & Curran	
2. Applicant's Mailing Address:	40 Forest Falls Drive, Suite 2, Yarmouth, Maine 04096	7. Agent's Mailing Address:	41 Hutchins Dr., Portland, ME 04102	
3. Applicant's Daytime Phone #:	(207) 817-5410	8. Agent's Daytime Phone #:	(207) 558-3662	
4. Applicant's Fax # (if available):		9. Agent's Fax # (if available):		
5. Applicant's e-mail address (REQUIRED -license will be sent via: e-mail):	matthew.dieterich@sewall.com	10. Agent's e-mail address (REQUIRED - license will be sent via e-mail):	dstairs@woodardcurran.com	

PROJECT INFORMATION

11. Name of Development:	Maine International Cold Storage Facility															
12. Map and Lot #'s:	Map #: 59	Lot #: BA 1, 2, 5-11	13. Deed Reference #'s:	Book #: 36501	Page #: 146											
14. Location of Project City/Town:	Portland	15. County:	Cumberland	16. UTM Northing	Unknown	17. UTM Easting	Unknown									
18. Brief Description of Project including total parcel size:	Construction of a new 108,024 SF cold storage building and associated site improvements on a +/- 17.9 acre parcel.															
19. Type of Direct Watershed: (Check all that apply)	<table><tr><td>☐ Lake not most at risk</td><td>☒ River, stream or brook</td><td>☒ Coastal wetland</td></tr><tr><td>☐ Lake most at risk</td><td>☐ Urban impaired stream</td><td>☐ Wellhead or public water</td></tr><tr><td>☐ Lake most at risk, severely blooming</td><td>☐ Freshwater wetland</td><td></td></tr></table>							☐ Lake not most at risk	☒ River, stream or brook	☒ Coastal wetland	☐ Lake most at risk	☐ Urban impaired stream	☐ Wellhead or public water	☐ Lake most at risk, severely blooming	☐ Freshwater wetland	
☐ Lake not most at risk	☒ River, stream or brook	☒ Coastal wetland														
☐ Lake most at risk	☐ Urban impaired stream	☐ Wellhead or public water														
☐ Lake most at risk, severely blooming	☐ Freshwater wetland															
20. Name of Waterbody Project Site drains to:	Fore River															
21. Amount of Developed Area:	Total 7.39 acres:	Existing Developed area:	7.39 acres	New Developed area:	0 acres											
22. Amount of Impervious Area:	Total 5.07 acres:	Existing Impervious areas:	5.72 acres	New Impervious area:	0 acres											
23. Development started prior to obtaining a license?:	☐ Yes ☒ No															
24. Development or any portion of the site subject to enforcement action?	☐ Yes ☐ No			If yes, name of enforcement staff involved?												
25. Common scheme of development?:	☐ Yes ☐ No	26. Title, Right or Interest:	☐ own ☐ lease	☒ purchase option ☐ written agreement												
27. Natural Resources Protection Act permit required?:	☒ Yes ☐ No		If yes:	☒ PBR	☐ Tier 1	☐ Full Permit	☐ Tier 2									
28. Existing DEP Permit number (if applicable):	N/A															
29. Names of DEP staff person(s) present at the pre-application meeting:	N/A															
30. Does agent have an interest in project? If yes, what is the interest?	☐ Yes ☒ No															

CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following :

CERTIFICATIONS / SIGNATURES

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the electronic address located on the front page of this application (see #5 for the applicant and #10 for the agent)".

Signed:  Title Project Manager Date: 3/13/2020

**Notice of Intent to Comply
with Maine Construction
General Permit**

With this Site Law application form and my signature, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit (MCGP). I have read and will comply with all of the MCGP standards.

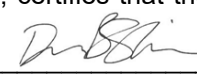
If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign.

Signed _____ Date: _____

NOTE: You must file a MCGP Notice of Termination (Form K) within 20 days of completing permanent stabilization of the project site.

CERTIFICATION

The person responsible for preparing this application and/or attaching pertinent site and design information hereto, by signing below, certifies that the application for development approval is complete and accurate to the best of his/her knowledge.

Signature: 

Name (print): Darrin Stairs

Date: 3/13/2020

Re/Cert/Lic No.: _____

Engineer _____

Geologist _____

Soil Scientist _____

Land Surveyor _____

Site Evaluator _____

Active Member of the Maine Bar _____

Professional Landscape Architect _____

Other _____

SUBMISSIONS CHECKLIST

If a provision is not applicable, put "NA"

Section 1. Development description

A. Narrative

- X 1. Objectives and details
X 2. Existing facilities (with dates of construction)

B. Topographic map

- X 1. Location of development boundaries
X 2. Quadrangle name

C. Construction plan

- X 1. Outline of construction sequence (major aspects)
 2. Dates

D. Drawings

- X 1. Development facilities
X a. Location, function and ground area
X b. Length/cross-sections for roads
X 2. Site work (nature and extent)
X 3. Existing facilities (location, function ground area and floor area)
 4. Topography
X a. Pre- and post-development (contours 2 ft or less)
X b. Previous construction, facilities and lot lines

X **Section 2. Title, right or interest** (copy of document)

Section 3. Financial capacity

A. Estimated costs

X

B. Financing

- N/A 1. Letter of commitment to fund
 2. Self-financing
X a. Annual report
N/A b. Bank statement
 3. Other
N/A a. Cash equity commitment
N/A b. Financial plan
X c. Letter
N/A 4. Affordable housing information

Section 4. Technical ability (description)

- X A. Prior experience (statement)
N/A B. Personnel (documents)

Section 5. Noise

- X A. Developments producing a minor noise impact (statement)
N/A 1. Residential developments
N/A 2. Certain non-residential subdivisions
N/A 3. Schools and hospitals
X 4. Other developments
X a. Type, source and location of noise
X b. Uses, zoning and plans
N/A c. Protected locations
X d. Minor nature of impact

X	e. Demonstration
N/A	B. Developments producing a major noise impact (full noise study)
N/A	1. Baseline
N/A	a. Uses, zoning and plans
N/A	b. Protected locations
N/A	c. Quiet area
N/A	2. Noise generated by the development
N/A	a. Type, source and location of noise
N/A	b. Sound levels
N/A	c. Control measures
N/A	d. Comparison with regulatory limits
N/A	e. Comparison with local limits

X **Section 6. Visual quality and scenic character**(narrative, description, visual impact analysis)

X **Section 7. Wildlife and fisheries** (narrative)

X **Section 8. Historic sites** (narrative)

X **Section 9. Unusual natural areas** (narrative)

Section 10. Buffers

N/A A. Site plan and narrative

Section 11. Soils

X	A. Soil survey map and report
X	1. Soil investigation narrative
X	2. Soil survey map
N/A	B. Soil survey intensity level by development type
	1. Class A (High Intensity) Soil Survey
	2. Class B (High Intensity) Soil Survey
	3. Class C (Medium High-Intensity) Soil Survey
	4. Class D (Medium Intensity) Soil Survey
X	C. Geotechnical Investigation
N/A	D. Hydric soils mapping

Section 12. Stormwater management

	A. Narrative
X	1. Development location
X	2. Surface water on or abutting the site
N/A	3. Downstream ponds and lakes
X	4. General topography
X	5. Flooding
N/A	6. Alterations to natural drainage ways
X	7. Alterations to land cover
X	8. Modeling assumptions
X	9. Basic standard
X	10. Flooding standard
X	11. General standard
X	12. Parcel size
X	13. Developed area
X	14. Disturbed area
X	15. Impervious area
	B. Maps
X	1. U.S.G.S. map with site boundaries
X	2. S.C.S. soils map with site boundaries
X	C. Drainage Plans (a pre-development plan and a post-development plan)

X	1. Contours
X	2. Plan elements
X	3. Land cover types and boundaries
X	4. Soil group boundaries
X	5. Stormwater quantity subwatershed boundaries
X	6. Stormwater quality subwatershed boundaries
X	7. Watershed analysis points
X	8. Hydrologic flow lines (w/flow types and flow lengths labeled)
X	9. Runoff storage areas
X	10. Roads and drives
X	11. Buildings, parking lots, and other facilities
X	12. Drainage system layout for storm drains, catch basins, and culverts
X	13. Natural and man-made open drainage channels
X	14. Wetlands
N/A	15. Flooded areas
X	16. Benchmark
X	17. Stormwater detention, retention, and infiltration facilities
X	18. Stormwater treatment facilities
N/A	19. Drainage easements
X	20. Identify reaches, ponds, and subwatersheds matching stormwater model
N/A	21. Buffers
X	D. Runoff analysis (pre-development and post development)
X	1. Curve number computations
X	2. Time of concentration calculations
X	3. Travel time calculations
X	4. Peak discharge calculations
X	5. Reservoir routing calculations
X	E. Flooding Standard
X	1. Variance submissions (if applicable)
X	a. Submissions for discharge to the ocean, great pond, or major river
X	i. Map
X	ii. Drainage plan
X	iii. Drainage system design
X	iv. Outfall design
N/A	v. Easements
N/A	b. Insignificant increase
N/A	i. Downstream impacts
N/A	c. Submissions for discharge to a public stormwater system
N/A	i. Letter of permission
N/A	ii. Proof of capacity
N/A	ii. Outfall analysis and design (pictures)
X	2. Sizing of storm drains and culverts
N/A	3. Stormwater ponds and basins
N/A	a. Impoundment sizing calculations
N/A	b. Inlet calculations
N/A	c. Outlet calculations
N/A	d. Emergency spillway calculations
N/A	e. Subsurface investigation report
N/A	f. Embankment specifications
N/A	g. Embankment seepage controls
N/A	h. Outlet seepage controls
N/A	i. Detail sheet
N/A	j. Basin cross sections
N/A	k. Basin plan sheet
N/A	4. Infiltration systems
N/A	a. Well locations map
N/A	b. Sand and gravel aquifer map
N/A	c. Subsurface investigation report with test pit or boring logs

N/A	d. Permeability analysis
N/A	e. Infiltration structure design
N/A	f. Pollutant generation and transport analysis
N/A	g. Monitoring and operations plan
N/A	i. Locations of storage points of potential contaminants
N/A	ii. Locations of observation wells and infiltration monitoring plan
N/A	iii. Groundwater quality monitoring plan
N/A	5. Drainage easement declarations.
X	F. Stormwater quality treatment plan peak discharge calculations
X	1. Basic stabilization plan
N/A	a. Ditches, swales, and other open channel stabilization
X	b. Culvert and storm-drain outfall stabilization
X	c. Earthen slope and embankment stabilization
X	d. Disturbed area stabilization
X	e. Gravel roads and drives stabilization
X	2. General Standard
X	a. Calculations for sizing BMP
X	b. Impervious area calculation
X	c. Developed area calculation
X	d. Summary spreadsheet of calculations
N/A	3. Phosphorus control plan
N/A	a. Calculations for the site's allowable phosphorus export
N/A	b. Calculations for determining the developed site's phosphorus export
N/A	c. Calculations for determining any phosphorus compensation fees
N/A	4. Offset Credits
N/A	a. Urban impaired stream
N/A	Offset credit calculation
N/A	b. Phosphorus credit determination
N/A	i. Location map
N/A	ii. Scaled plan
N/A	iii. Title and right
N/A	iv. Demolition plan
N/A	v. Vegetation plan
N/A	vi. Offset credit calculation
N/A	vii. Calculation for the new allowable export
X	5. Runoff treatment measures
X	a. structural measures
X	i. Design drawings and specifications
X	ii. Design calculations
X	iii. Maintenance plan
N/A	iv. TSS removal or phosphorus treatment factor determinations
X	v. Stabilization plan
N/A	b. Vegetated buffers
N/A	i. Soil survey
N/A	ii. Buffer plan
N/A	iii. Turnout and level spreader designs
N/A	iv. Deed restrictions
N/A	6. Control plan for thermal impacts to coldwater fisheries
N/A	7. Control plan for other pollutants
X	8. Engineering inspection of stormwater management facilities
X	G. Maintenance of common facilities or property
X	1. Components of the maintenance plan
X	A. Maintenance of facilities by owner or operator
X	1. Site owner or operator (name legally responsible party)
X	2. Contact person responsible for maintenance
X	3. Transfer mechanism

X	4. List of facilities to be maintained
X	5. List of inspection and maintenance tasks for each facility
N/A	6. Identifications of any deed covenants, easements, or restrictions
X	7. Sample maintenance log
N/A	8. Copies of any third-party maintenance contracts
N/A	B. Maintenance of facilities by homeowner's association
N/A	1. Incorporation documents for the association
N/A	2. Membership criteria
N/A	3. Association officer responsible for maintenance
N/A	4. Establishment of fee assessment for maintenance work
N/A	5. Establishment of lien system
N/A	6. Reference to department order(s) in association charter
N/A	7. Transfer mechanism from developer to association
N/A	8. List of facilities to be maintained
N/A	9. Identification of any deed covenants, easements, or restrictions
N/A	10. Renewal of covenants and leases
N/A	11. List of inspection and maintenance tasks for each facility
N/A	12. Sample maintenance log
N/A	13. Copies of any third-party maintenance contracts
N/A	C. Maintenance of facilities by municipality or municipal district
N/A	1. Identification of the municipal department or utility district
N/A	2. Contact person responsible for maintenance
N/A	3. Evidence of acceptance of maintenance responsibility
N/A	4. Transfer mechanism from developer
N/A	5. List of facilities to be maintained
N/A	6. List of inspection and maintenance tasks for each facility
N/A	7. Identifications of any deed covenants, easements, or restrictions
N/A	8. Sample maintenance log
X	2. General inspection and maintenance requirements
N/A	a. Drainage easements
X	b. Ditches, culverts, and catch-basin systems
X	c. Roadways and parking surfaces
X	d. Stormwater detention and retention facilities
N/A	1. Embankment inspection and maintenance
X	2. Outlet inspection and clean-out
N/A	3. Spillway maintenance
X	4. Sediment removal and disposal
N/A	e. Stormwater infiltration facilities
N/A	1. Sediment protection plan
N/A	2. Infiltration rehabilitation plan
N/A	3. Sediment removal and disposal
N/A	4. Groundwater monitoring plan
X	f. Proprietary treatment devices
N/A	g. Buffers
N/A	h. Other practices and measures

Section 13. Urban Impaired Stream Submissions

N/A	1. Off-site credits
N/A	2. Compensation fees (Urban Impaired Stream/Phosphorus)
N/A	3. Development impacts

Section 14. Basic Standards

X	A. Narrative
X	1. Soil types
N/A	2. Existing erosion problems
N/A	3. Critical areas
X	4. Protected natural resources
X	5. Erosion control measures

X	6. Site stabilization
X	B. Implementation schedule
X	C. Erosion and sediment control plan
X	1. Pre-development and post-development contours
X	2. Plan scale and elements
X	3. Land cover types and boundaries
N/A	4. Existing erosion problems
N/A	5. Critical areas
X	6. Protected natural resources
X	7. Locations (general)
X	8. Locations of controls
X	9. Disturbed areas
X	10. Stabilized construction entrance
X	D. Details and specifications (for both temporary and permanent measures)
N/A	E. Design calculations
X	F. Stabilization plan
X	1. Temporary seeding
X	2. Permanent seeding
N/A	3. Sodding
X	4. Temporary mulching
X	5. Permanent mulching
X	G. Winter construction plan
X	1. Dormant seeding
X	2. Winter mulching
N/A	H. Third-party inspections
N/A	1. Inspector's name, address, and telephone number
N/A	2. Inspector's qualifications
N/A	3. Inspection schedule
NA	4. Contractor contact
N/A	5. Reporting protocol

Section 15. Groundwater

N/A	A. Narrative
N/A	1. Location and maps
N/A	2. Quantity
N/A	3. Sources
N/A	4. Measures to prevent degradation
N/A	B. Groundwater protection plan
N/A	C. Monitoring plan
N/A	1. Monitoring points
N/A	2. Monitoring frequency
N/A	3. Background conditions
N/A	4. Monitoring parameters
N/A	5. Personnel qualifications
N/A	6. Proof of training
N/A	7. Equipment and methods
N/A	8. Quality assurance/quality control
N/A	9. Reporting requirements
N/A	10. Remedial action plan
N/A	D. Monitoring well installation report
N/A	1. Well location map
N/A	2. Elevation data
N/A	3. Well installation data
N/A	4. Well construction details
N/A	5. Borehole logs
N/A	6. Summary of depth measurements
N/A	7. Characteristics of subsurface strata
N/A	8. Well installation contract

N/A	9. Schematic cross-sections
N/A	10. Monitoring point summary table
N/A	11. Protective casing
N/A	12. On-site well identification

Section 16. Water supply

X	A. Water supply method
N/A	1. Individual wells (evidence of sufficient/healthful supply)
N/A	a. Support of findings by well drillers
N/A	b. Support of findings by geologist
N/A	2. Common well(s) (reports)
N/A	a. Hydrogeology report
N/A	b. Engineering report
N/A	c. Well installation report
N/A	d. Long-term safe yield and zone of influence determination
N/A	e. Public water supply
N/A	i. Proposed well or wells
N/A	ii. Existing well or wells
N/A	iii. Water quality analysis
N/A	3. Well construction in shallow-to-bedrock areas
N/A	4. Additional information
X	5. Off-site utility company or public agency
N/A	6. Other sources
N/A	B. Subsurface wastewater disposal systems (locations of systems and wells)
X	C. Total usage (statement re: total anticipated water usage)

Section 17. Wastewater disposal

N/A	A. On-site subsurface wastewater disposal systems (investigation results)
N/A	1. Site plan
N/A	2. Soil conditions summary table
N/A	3. Logs of subsurface explorations
N/A	4. Additional test pits, borings or probes
N/A	a. Soil conditions A
N/A	b. Soils with Profiles 8 and 9 parent material
N/A	c. Soil conditions D
N/A	d. Disposal field length 60 feet or greater
N/A	5. 3-bedroom design
N/A	6. Larger disposal systems
N/A	a. System design details
N/A	b. Plan view
N/A	c. Cross sections
N/A	d. Test pit data
N/A	e. Mounding analysis
N/A	B. Nitrate-nitrogen impact assessment
N/A	1. When required
N/A	a. Exempted_____
N/A	i. Conventional systems meeting certain setbacks
N/A	ii. Denitrification systems
N/A	b. Special conditions and other exemptions
N/A	2. Assumptions
N/A	a. Initial concentration
N/A	b. Background concentration
N/A	c. Contribution from development
N/A	d. Mixing and dilution
N/A	e. Severe-drought scenario
N/A	f. Wastewater flow to subsurface wastewater disposal fields

N/A	3. Assessment report minimum requirements
N/A	a. Narrative and calculations
N/A	b. Site plan
N/A	i. Well locations
N/A	ii. 10 mg/l and 8 mg/l isocons
N/A	iii. Groundwater contours and groundwater flow divides
N/A	c. References
N/A	4. Denitrification systems
N/A	a. Design plans and specifications
N/A	b. Installation information
N/A	c. Monitoring plan
N/A	d. Maintenance
N/A	e. Backup system
X	D. Municipal facility or utility company letter
N/A	E. Storage or treatment lagoons

X	Section 18. Solid waste (list: type, quantity, method of collection and location)
X	A. Commercial solid waste facility (final disposal location)
X	B. Off-site disposal of construction/demolition debris (final disposal location)
	C. On-site disposal of woodwaste/land clearing debris
N/A	1. Applicability of rules (evidence re: applicability of rules)
	2. Burning of wood wastes
N/A	a. Delineation on site plan
N/A	b. Plans for handling unburned woodwaste and woodash
N/A	c. Evidence of capacity to accept waste (approved facility)
N/A	d. Usage of materials
N/A	e. Data on mixing ratios and application rates
X	D. Special or Hazardous Waste

	Section 19. Flooding
X	A. Explanation of flooding impact
X	B. Site plan showing 100-year flood elevation
N/A	C. Hydrology analysis
X	D. FEMA flood zone map with site boundaries

	Section 20. Blasting
N/A	A. Site Plan or map
N/A	B. Report
	1. Assessment
	2. Blasting plan

	Section 21. Air emissions (narrative and summary)
N/A	A. Point and non-point sources identified
N/A	B. Emission components (point sources)

	Section 22. Odors
N/A	A. Identification of nature/source
N/A	B. Estimate of areas affected
N/A	C. Methods of control)

N/A	Section 23. Water vapor (narrative)
-----	--

N/A	Section 24. Sunlight (statement and drawing, if required)
-----	--

	Section 25. Notices
N/A	A. Evidence that notice sent
N/A	B. List of abutters for purposes of notice

1. DEVELOPMENT DESCRIPTION

This narrative report is in support of a Site Location of Development (SLOD) Permit Application for the proposed Cold Storage Facility located at 40 West Commercial Street in Portland, Maine. A letter authorizing Woodard & Curran to act as the agent on behalf of the Applicant is attached to this application.

1.1 OBJECTIVES & DETAILS

The Site was operated by Portland Gas Light Company (Portland Gas) between 1852 and 1965. During this time, coal was delivered to the Site by ship and rail and then converted into coal gas, which was used for lighting, heating, and cooking purposes. In 1965, Portland Gas ceased operations at the Site, and the manufactured gas plant (MGP) was decommissioned. In 1966, Portland Gas merged with Lewiston Gas Light Company to form Northern Utilities, Inc. (Northern Utilities). Northern Utilities and a tenant (NGL Energy Partners, LP) operated a natural gas/propane distribution facility at the Site until 2016. The Site is currently owned by the State of Maine (acquired through eminent domain on April 30, 2014) and is currently operated by the Maine Port Authority as part of the adjacent International Marine Terminal (IMT), an intermodal container shipping facility that supports cargo coming and going from the Site via rail, ship, and truck.

In 2014, the State of Maine acquired 23 acres of vacant land (which includes the Site) adjacent to the IMT to develop intermodal rail access and construct a larger trucking yard for freight transfer operations. In addition, logistics and freight capabilities have been expanded through improvements at the container terminal and ocean shipping operations facility at the IMT.

The Cold Storage Facility will be constructed in the vacant portion of the site previously occupied by a coal to gas facility and natural gas facilities. The building will be approximately 108,000 total square feet and comprised of roughly 91,000 square feet space for offloading and cold storage, 13,000 square feet of administrative space, and 4,000 square feet of mechanical and utility space. There will be 12 loading docks located on the east side of the building, as well as 12 truck parking spaces. A 24-foot wide fire access road will circulate around the building to the west and south along the Fore River.

In addition to the SLOD permit, the proposed work requires the following permits:

- City of Portland Level III Site Plan;
- City of Portland Flood Hazard Development Permit;
- MaineDEP Natural Resources Protection Act Permit-by-Rule;
- ACOE Category II Permit;
- Maine Construction General Permit Notice of Intent; and
- FAA Notice of Proposed Construction.

1.2 EXISTING FACILITIES

The area of the 17.9-acre property where the Cold Storage Facility is proposed is currently vacant. There are remnant concrete slabs and pavements, site lights, transformer pads, railroad tracks, and gravels that will be removed. Other portions of the property, outside of the proposed Cold Storage Facility, are currently being used for various IMT operations. There is also a gas facility operated by Unitil located on the parcel. The Existing Conditions Plan, included in the drawings submitted with this application, depicts the existing conditions of the project area, based on a ground-level survey and site observations completed by Owen-Haskell on October 23, 2019.

1.3 TOPOGRAPHIC MAP

A USGS topographic map showing the approximate location of proposed development is attached to this Section for your reference. Topography slopes generally from West Commercial Street towards the Fore River, from approximate elevation 15' down to 10' at the approximate top of bank, before breaking in slope down to the river. The Highest Annual Tide Line is at Elevation 7.2 (NGVD 1929).

1.4 CONSTRUCTION PLAN

Construction is anticipated to begin in August of 2020. Erosion and sediment control measures will be installed prior to any ground disturbing activities, as described in Section 14 of this Report. A Construction Management Plan has been submitted to the City as part of the Site Plan Application review process.

The Site will be managed during construction to minimize impacts to the adjacent land uses. Maintaining access to adjacent properties and public facilities will be a priority. Traffic impacts to adjacent roadways, including West Commercial Street and Beach Street, will be minimized during construction to the greatest extent possible. Traffic controls will consist of temporary signage and barriers where necessary to manage vehicle, pedestrian, and bicycle traffic and direct it safely around the construction area. Underground utility work and grading activities are not anticipated to impact traffic circulation at the site entrance at the intersection of Beach Street and West Commercial Street as all utilities are all stubbed into the extents of the project site and the electrical tie-in is anticipated to be completed at an existing pole located off West Commercial street. Street opening permits will not be required for these utility connections. Additionally, stormwater will be discharged through an outfall to Fore River.

Below is the anticipated sequence of construction activities for major aspects of the development:

- Installation of erosion and sediment control measures and traffic control measures;
- Demolition and site preparation activities;
- Construction of utilities, stormwater management system, and the driveway;
- Construction of the building;
- Installation of landscaping and final surface materials; and
- Removal of erosion and sediment control measures.

1.5 DRAWINGS

Design drawings showing the proposed development are included with this application.

1.6 LIST OF ATTACHMENTS

The following documents are attached to this Section:

- Topographic Map; and
- Design Drawings (Bound Separately).



0 1,000 2,000
Feet

IMT COLD STORAGE FACILITY

COMMERCIAL STREET
PORTLAND, ME

FIGURE 1 - SITE LOCATION MAP



Project #: 0232277.00
Map Created: September 2019

2. TITLE, RIGHT, AND INTEREST

As noted on the survey, the Cold Storage Facility will be located on a parcel of land currently owned by the Maine Port Authority. A copy of the deed and the Option to Ground Lease Agreement, which serves as evidence of right, title, and interest, has been attached to this Section.

2.1 ATTACHMENTS

- Deed of Convenience, dated March 11, 2020, Cumberland County Registry of Deeds, Book 36501, Pg 146.
- Option to Ground Lease Agreement, dated March 12, 2020, between Maine Port Authority and Maine International Cold Storage Facility LLC.

DEED OF CONVENIENCE

The **STATE OF MAINE**, acting by and through its **DEPARTMENT OF TRANSPORTATION** (the "Grantor" or "MaineDOT"), under and pursuant to the provisions of 23 M.R.S. § 4424, for consideration, hereby **TRANSFERS** all its right, title and interest in and to land and rights in land situated on the southerly side of West Commercial Street in the City of Portland, County of Cumberland, State of Maine, as further described herein to **THE MAINE PORT AUTHORITY**, a body both corporate and politic in the State of Maine (the "Grantee" or "MPA"), having a mailing address of 460 Commercial Street, Portland, Maine 04101.

Said property (the "Premises") is more particularly described in the attached **Exhibit A Legal Description** and shown on the attached **Exhibit B Plans**, being copies of the following MaineDOT Right of Way Maps:

- A. Plan entitled "State of Maine Department of Transportation Right of Way Map, Land Acquisition Plan Part II, West Commercial Street, Portland, Cumberland County, Maine" dated April 25, 2014 and recorded in Plan Book 219, Page 37 of the Cumberland County Registry of Deeds, and being further identified in MaineDOT's records as D.O.T. File No. 3-596.
- B. Plan entitled "State of Maine Department of Transportation Right of Way Map, Land Acquisitions, West Commercial Street, Portland, Cumberland County, Maine" dated April 2014, revised March 9, 2020 and recorded in Plan Book 220, Page 63 of said Registry of Deeds and being further identified in MaineDOT's records as D.O.T. File No. 3-595.

The Premises are conveyed **SUBJECT TO** the following:

1. All easements and encumbrances of record;
2. All Certificates of Completion, all recorded covenants and restrictions, and all conditions and protections affecting the Premises as set forth in the records of the Maine Department of Environmental Protection's ("DEP") Voluntary Response Action Program ("VRAP") referencing the former Portland Gas Works site. Recorded covenants and restrictions encumbering the property include the following:
 - a. Declaration of Environmental Covenant dated May 24, 2015 and recorded in Book 32334, Page 6 of said Registry of Deeds;
 - b. Declaration of Environmental Covenant dated September 18, 2019 and recorded in Book 36025, Page 267 of said Registry of Deeds; and
 - c. Declaration of Environmental Covenant dated September 18, 2019 and recorded in Book 36025, Page 291 of said Registry of Deeds.
3. The condition subsequent that, in the event MPA no longer uses the Premises for port-related transportation purposes, MaineDOT shall have the right, upon sixty (60) days prior written notice, to reenter and retake the Premises, and MPA shall surrender

Deed of Convenience
MaineDOT to Maine Port Authority
Portland, Maine

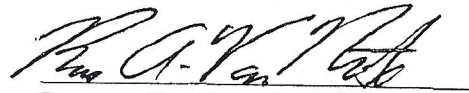
the same and execute any documentation that MaineDOT reasonably requires to evidence the vesting of fee simple title in Maine DOT.

4. The condition that MPA shall not convey the Premises, or any portion thereof, to a third party without obtaining MaineDOT's prior written permission, which shall be granted at MaineDOT's sole discretion.
5. The terms of an existing Easement Agreement between MaineDOT and Northern Utilities, Inc. d/b/a Unitil dated December 15, 2016 and recorded in Book 33716, Page 257 of said Registry of Deeds.
6. All utility easements and installations of record and located on the Premises and to those rights that any utility enjoys over the Premises for maintenance, location or relocation of poles and other installations.

The Grantor makes no representations or warranties with respect to the Premises conveyed. The representations and warranties so excluded encompass, but are not limited to, those pertaining to: land use and environmental matters; fitness of the Premises or any portion thereof for any particular purpose; water quality or quantity; the condition or quality of the soil; inchoate or unrecorded liens; or the existence, status, or condition of access to, or public utilities serving the Premises. Any subsequent use of, improvement to, or construction on the parcel is subject to all applicable laws, regulations, ordinances, and permitting requirements.

IN WITNESS WHEREOF, the said State of Maine, acting by and through its Department of Transportation, has caused this instrument to be executed by Bruce A. Van Note, its Commissioner, thereunto duly authorized this 11th day of March in the year two thousand twenty.

STATE OF MAINE
Department of Transportation

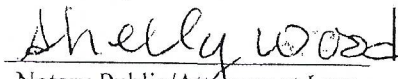

Bruce A. Van Note, Commissioner

STATE OF MAINE
County of Kennebec

March 11, 2020

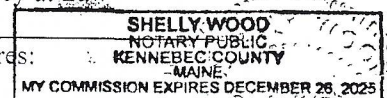
Personally appeared the above-named Bruce A. Van Note, Commissioner of the Maine Department of Transportation, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of the State of Maine.

Before me,


Notary Public/Attorney at Law

Print name: _____

My commission expires: _____



Deed of Convenience
MaineDOT to Maine Port Authority
Portland, Maine



EXHIBIT A
Legal Description

THREE CERTAIN PARCELS OF LAND, together with any improvements held by the Grantor thereon and not otherwise excepted or excluded herein, situated on the southerly side of West Commercial Street in the City of Portland, County of Cumberland and State of Maine described as follows (the "Premises") and depicted on the attached **Exhibit B Plans** (the "Right of Way Maps"):

PARCEL ONE:

All land, and rights in land located within the following described boundaries:

COMMENCING at a granite monument found in a manhole located in the southerly sideline of West Commercial Street about 393' northerly of the intersection of the said West Commercial Street and Clark Street, as shown on said Right of Way Map;

THENCE S 32°36'10" W along the southerly sideline of West Commercial Street 86.09 feet to the **point of beginning**, said point being the northeasterly corner of property conveyed by Portland Terminal Company to New Yard, LLC by deed dated July 31, 2013 and recorded in Book 30887, Page 247 of the Cumberland County Registry of Deeds;

THENCE from said point of beginning S 32°31'38" E along the westerly line of land now or formerly of the City of Portland 580 feet, more or less to mean low water;

THENCE westerly and southwesterly along mean low water 64 feet, more or less, to a point on the easterly line of land now or formerly of Casco Wharf & Storage as described in Book 1507, Page 126 of said Registry of Deeds (which is a part of the parcel herein described);

THENCE S 32°31'38" E along said easterly line of said Casco Wharf & Storage 50 feet more or less to the Former Harbor Commissioner's Line of 1929;

THENCE S 37°45'10" W along said Harbor Commissioner's Line 600 feet, more or less to a point;

THENCE S 62°18'00" W along said Harbor Commissioner's Line 400 feet, more or less, to a point;

THENCE S 78°39'00" W along said Harbor Commissioner's Line 117 feet, more or less, to the southerly corner of a parcel shown on said Right of Way Map as "Parcel 5";

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MaineDOT to Maine Port Authority
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THENCE N 21°46'06" W 60 feet, more or less, to the mean low water line as shown on said Right of Way Map;

THENCE continuing N 21°46'06" W 105 feet, more or less, through land now or formerly of New Yard, LLC to the southerly corner of a parcel of land formerly owned by Northern Utilities, Inc., d/b/a Until;

THENCE N 43°25'17" W along the westerly boundary of said land formerly of said Northern Utilities (which is a part of the parcel herein described) and the easterly boundary of land now or formerly of said New Yard, LLC 435.50 feet to the northwest corner of said former Northern Utilities parcel and a point that represents the northeast corner of said land now or formerly of said New Yard, LLC;

THENCE S 70°47'58" W along the northerly boundary of said land now or formerly of said New Yard, LLC 381.52 feet to land formerly of Portland Terminal Company and Maine Central Railroad Company and now of the State of Maine as described in a Notice of Condemnation recorded in Book 31408, Page 301 of said Registry of Deeds (said land now of the State of Maine being Parcel Two described herein);

THENCE N 16°58'37" W along land of the State of Maine and now or formerly owned by Portland Terminal Company and Maine Central Railroad Company 149.35 feet to the southerly side of West Commercial Street;

THENCE N 73°01'23" E along the southerly sideline of said West Commercial Street 1053.20 feet to a point;

THENCE N 32°36'10"E along the southerly sideline of said West Commercial Street 551.51 feet to the **point of beginning**.

The above described parcel contains 18 acres, more or less.

EXCEPTING FROM THE ABOVE DESCRIBED PARCEL any existing gas facilities, including without limitation, natural gas and propane pipelines, buildings, associated fixtures and related appurtenances, improvements and other personal property that are owned by or are in the custody and control of Northern Utilities, Inc., d/b/a Until.

MEANING AND INTENDING TO CONVEY all rights acquired by the Grantor through the following:

- a. Notice of Condemnation filed in said Registry of Deeds on April 30, 2014 in Book 31470, Page 191 of said Registry of Deeds; and

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- b. Notice of Condemnation filed in said Registry of Deeds on May 11, 2016 in Book 33101, Page 252 of said Registry of Deeds

PARCEL TWO:

All land and rights in land within the following described boundaries:

COMMENCING at a point on the southerly sideline of West Commercial Street at the northwesterly corner of land now or formerly of New Yard, LLC recorded in the Cumberland County Registry of Deeds in Book 30887, Page 247;

THENCE, S 16°58'37" E along the westerly line of land of said New Yard, LLC 90.30 feet to the **point of beginning**;

THENCE from said point of beginning S 16°58'37" E continuing along the westerly line of land of New Yard, LLC 67.90 feet;

THENCE the following courses and distances through land of Maine Central Railroad Company:

S 66°19'39" W for a distance of 57.45 feet;
S 62°41'27" W for a distance of 125.13 feet;
S 59°26'10" W for a distance of 495.19 feet;

THENCE, along a curve to the right with a radius of 725.74 feet, having an arc length of 165.42 feet, having a chord bearing of S 65°57'58" W and chord length of 165.07 feet;

THENCE, S 72°29'45" W for a distance of 519.07 feet;

THENCE, along a curve to the right with a radius of 725.78 feet, having an arc length of 185.34 feet, having a chord bearing of S 79°48'41" W and chord length of 184.84 feet;

THENCE, S 87°07'38" W for a distance of 21.45 feet to a point;

THENCE, S 02°52'22" E for a distance of 26 feet, more or less, to the spring high tide line;

THENCE, generally westerly along the spring high tide line 1316 feet, more or less, to land now or formerly of Cianbro Corp. recorded in said Registry of Deeds in Book 3424, Page 116, being on a bearing of S 74°55'10" W a distance of 1075.68 feet from the last mentioned point;

THENCE, the following courses and distances along land of said Cianbro Corp.:

N 16°59'42" W for a distance of 171.32 feet;
S 79°48'18" W for a distance of 347.84 feet;

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N 16°59'42"W for a distance of 53.00 feet to the southerly sideline of Cassidy Point Road;

THENCE, N 73°00'18" E along the southerly sideline of Cassidy Point Road 263.93 feet to the southerly sideline of West Commercial Street;

THENCE, N 82°56'03" E continuing along the southerly sideline of West Commercial Street 543.92 feet to an angle point;

THENCE, N 77°41'31" E continuing along the southerly sideline of West Commercial Street 16.88 feet;

THENCE, the following courses and distances through land of Maine Central Railroad Company:

N 84°41'57" E for a distance of 219.48 feet;

N 86°01'33" E for a distance of 312.82 feet;

N 87°07'38" E for a distance of 273.21 feet;

N 72°29'45" E for a distance of 542.24 feet;

THENCE, along a curve to the left with a radius of 673.74 feet, having an arc length of 153.57 feet, having a chord bearing of N 65°57'58" E and chord length of 153.24 feet;

THENCE, N 59°26'10"E a distance of 693.10 feet to the point of beginning.

The above described parcel contains 5.0 acres, more or less.

EXCEPTING FROM THE ABOVE DESCRIBED PARCEL the premises conveyed by the State of Maine to Cianbro Corporation by Governor's Deed dated January 8, 2015 and recorded in Book 32199, Page 285 of said Registry of Deeds containing 5780 square feet, more or less.

MEANING AND INTENDING TO CONVEY all rights acquired by the Grantor through its Notice of Condemnation filed in said Registry of Deeds on March 27, 2014 in Book 31408, Page 301 of said Registry of Deeds, excepting the aforementioned premises conveyed to Cianbro Corporation in Book 32199, Page 285.

PARCEL THREE:

All right, title and interest in and to the intertidal and submerged lands adjoining the parcels described above and located between the spring high tide line and the Former Harbor Commissioner's Line of 1929 as shown on said Right of Way Maps and acquired by the Grantor by virtue of the above-referenced Notices of Condemnation, to the extent that such rights are not otherwise excepted herefrom.

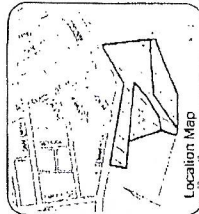
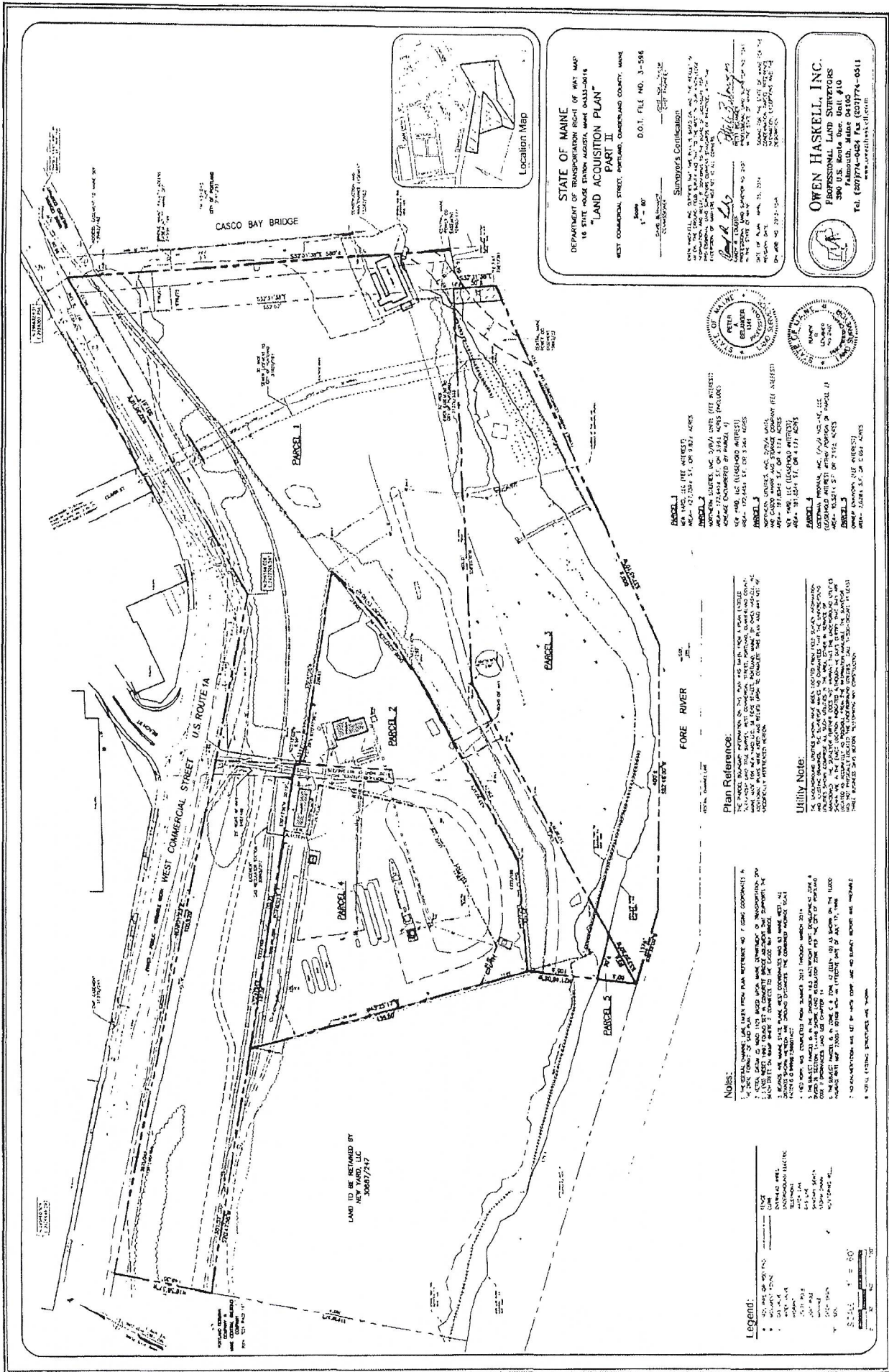
Deed of Convenience
MaineDOT to Maine Port Authority
Portland, Maine

EXHIBIT B

Plans

(see following two pages)

Deed of Convenience
MaineDOT to Maine Port Authority
Portland, Maine



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP
16 STATE ROAD STATION AUGUSTA MAINE 04301-0016
"LAND ACQUISITION PLAN"
PART II
WEST COMMERCIAL STREET, PORTLAND, CAMDEN AND COUNTY, MAINE

Scale
1" = 60'
D.O.I. FILE NO. 3-556
CONTRACT NO. 3-556

SURVEYOR'S CERTIFICATION
I, the undersigned, being duly sworn, depose and say that the foregoing is a true and correct copy of the original map on file in the office of the State Engineer, and that the same was prepared by me or under my direct supervision and to the best of my knowledge and belief it is a true and correct copy of the original map on file in the office of the State Engineer.

DATE OF MAP 04/11/11
DATE OF SURVEY 04/11/11
DATE OF PREPARATION 04/11/11
DATE OF RECORDING 04/11/11

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. Route One, Unit #10
Portland, Maine 04103
Tel: (207) 774-0424 Fax: (207) 774-0511
www.owenhaskell.com



PARCEL 1
NEWARK, LLC (SEE INTEREST)
AREA: 12.2284 S.F. OF 9.871 ACRES

PARCEL 2
NEWARK, LLC (SEE INTEREST)
AREA: 12.2284 S.F. OF 9.871 ACRES

PARCEL 3
NEWARK, LLC (SEE INTEREST)
AREA: 12.2284 S.F. OF 9.871 ACRES

PARCEL 4
NEWARK, LLC (SEE INTEREST)
AREA: 12.2284 S.F. OF 9.871 ACRES

PARCEL 5
NEWARK, LLC (SEE INTEREST)
AREA: 12.2284 S.F. OF 9.871 ACRES

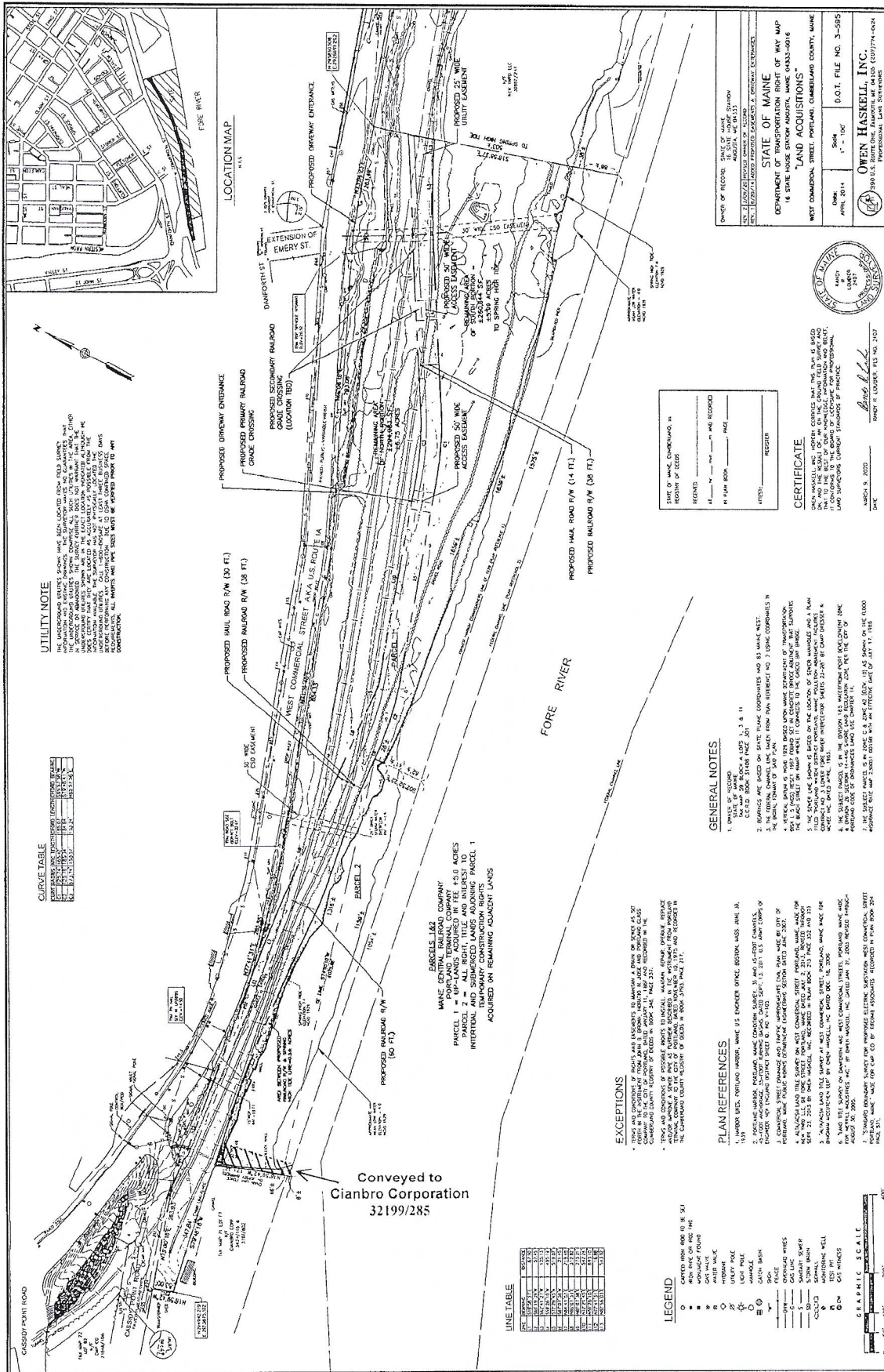
Plan Reference:
The parcel boundary information on this map was taken from a plan (hereinafter referred to as the "Plan") which was filed in the office of the State Engineer on 04/11/11. The Plan is a true and correct copy of the original map on file in the office of the State Engineer.

Utility Note:
The utility lines shown on this map were taken from a plan (hereinafter referred to as the "Plan") which was filed in the office of the State Engineer on 04/11/11. The Plan is a true and correct copy of the original map on file in the office of the State Engineer.

Notes:
1. ALL LOTS SHOWN ON THIS MAP ARE SUBJECT TO THE EASEMENTS AND RIGHTS OF WAY SHOWN ON THE PLAN.
2. THE PLAN IS A TRUE AND CORRECT COPY OF THE ORIGINAL MAP ON FILE IN THE OFFICE OF THE STATE ENGINEER.
3. THE PLAN IS A TRUE AND CORRECT COPY OF THE ORIGINAL MAP ON FILE IN THE OFFICE OF THE STATE ENGINEER.
4. THE PLAN IS A TRUE AND CORRECT COPY OF THE ORIGINAL MAP ON FILE IN THE OFFICE OF THE STATE ENGINEER.
5. THE PLAN IS A TRUE AND CORRECT COPY OF THE ORIGINAL MAP ON FILE IN THE OFFICE OF THE STATE ENGINEER.

Legend:
• 1" = 60'
• 1" = 60'
• 1" = 60'
• 1" = 60'
• 1" = 60'
• 1" = 60'
• 1" = 60'
• 1" = 60'

LAND TO BE RETAINED BY
NEW YARD, LLC
30651/217



Received
Recorded Register of Deeds
Mar 12, 2020 08:21:19A
Cumberland County
Nancy A. Lane

OPTION TO GROUND LEASE AGREEMENT

This OPTION TO GROUND LEASE AGREEMENT (this “**Agreement**”) is entered into as of the Effective Date by and between Owner and Optionee. In consideration of the mutual promises of the parties herein contained and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Optionee and Owner hereby agree as follows:

BASIC OPTION PROVISIONS

EFFECTIVE DATE	<u>March 12</u> , 2020.
OWNER	The Maine Port Authority, a State of Maine “body both corporate and politic,” a quasi-governmental entity created under Maine Statute at 23 M.R.S. §§ 4420-4430.
OPTIONEE	Maine International Cold Storage Facility LLC, a limited liability company.
PROPERTY	That real property consisting of the parcel(s) located in the City/Town of Portland, County of Cumberland, State of Maine, as more particularly depicted in <u>Exhibit A</u> , together with any improvements located thereon and rights, benefits and easements appurtenant to the parcel(s).
LAND	The Land is co-extensive with the Property (see Exhibit A).
OPTION PERIOD	Three (3) months from the Effective Date, which Optionee may extend for an additional period of three (3) months pursuant to <u>Section 2(a)</u> .
OPTION PAYMENT	An amount equal to 10 and 00/100 Dollars (\$10.00), to be paid up front on the Effective Date (the “ Option Payment ”).

LIST OF EXHIBITS

EXHIBIT A – Depiction of the Land (entitled “Existing Conditions,” “IMT WEST COLD STORAGE FACILITY,” July 2015)

EXHIBIT B – Letter of Intent from Amber Infrastructure Group (January 27, 2020)

EXHIBIT C – Design-Build Agreement between Maine Port Authority and Woodard & Curran Constructors, LLC (Feb. 13, 2019, and as amended May 28, 2019)(without exhibits)

EXHIBIT D– Deed of Convenience, Book 36501, Page 146 (March 11, 2020)

1. **Grant of Option.** Owner hereby grants to Optionee the exclusive option (the “**Option**”) to lease all or any portion of the Land and obtain any easements upon other portions of the Property reasonably required for access and utility connections (the “**Easements**” and together with the Land, the “**Premises**”) that Optionee deems necessary for the Project (defined below), in accordance with this Agreement. If Optionee exercises the Option in accordance with Section 3 below, the parties shall enter into the ground lease agreement (the “**Lease**”) as discussed in Section 4 below. “**Project**” shall mean the construction of the Maine International Cold Storage Facility as discussed in the Letter of Intent (attached as Exhibit B) (the “**LOI**”).

2. **Option Period and Payment.**

(a) **Option Period.** The period during which the Option may be exercised shall commence on the Effective Date and continue until the expiration of the Option Period as described in the Basic Option Provisions above. Optionee shall have the right to extend the Option Period for one (1) additional three (3) month period, provided that Optionee delivers notice to Owner of its intent to extend the Option Period at least five (5) days prior to the original expiration of the Option Period. Notwithstanding the foregoing, the Option Period shall automatically terminate upon the earlier of (i) execution of the Lease by Owner and Optionee; (ii) Optionee providing written notice of its election to cancel this Agreement (in Optionee's sole and absolute discretion); or (iii) 5:00 p.m. (in the time zone where the Property is located) on the date of expiration of the Option Period (or extended Option Period, if Optionee so extends under this section).

(b) **Option Payment.** Within twenty (20) days after the Effective Date, Optionee shall pay to Owner the Option Payment.

3. **Notice of Exercise of Option.** Optionee may exercise the Option at any time during the Option Period by delivering to Owner a written notice exercising the Option (the "**Option Notice**").

4. **Lease Agreement.** If Optionee delivers an Option Notice to Owner, then Owner and Optionee shall, in good faith, negotiate and agree to a Lease over the Property. The terms and conditions of the Lease shall in all events include the relevant sections of the LOI, unless otherwise agreed by the parties.

5. **Closing.** Upon delivery of the Option Notice to Owner in accordance with Section 3 above, the execution of the Lease by Owner and Optionee (the "**Closing**") shall take place on a date mutually agreed by the Parties.

6. **Due Diligence; Title.**

(a) **Due Diligence.** Owner has already provided Optionee with a certain Design-Build Agreement between the Maine Port Authority and Woodard & Curran Constructors, LLC (attached as **Exhibit C**, without underlying exhibits). In furtherance of providing Exhibit C and related exhibits and papers, the Owner has already shared with Optionee all documents that Owner considers relevant to analyzing the Project contemplated in the LOI (Ex. B). Optionee may, at its discretion, utilize Exhibit C and its underlying documents during the Option Period or during the follow-on project, to whatever extent the Optionee deems appropriate. Owner provided Exhibit C and its related exhibits and papers to Optionee on an as-is, where-is basis without warranty, but Owner is not aware of any information contradicting Exhibit C and its underlying exhibits. If Owner becomes aware of additional documents or information that undermine or contradict any information contained in Exhibit C, Owner will notify Optionee of the same within ten (10) days.

(b) **Title.** Optionee, at its sole cost, may obtain a preliminary title report (the "**Title Report**") and/or survey (the "**Survey**") for the Property. If Optionee, in its sole discretion, determines that the existence, use, operation, implementation, or exercise of any matters identified by the Title Report or Survey could materially delay, interfere with, impair or prevent Optionee's development, operation or financing of the Project, then Optionee may notify Owner of such issues and Owner shall cooperate with Optionee in efforts to obtain a release, subordination, non-disturbance agreement, consent, or other agreement (in a form reasonably acceptable to Optionee) from the holder(s) of such rights. In the event that any holder(s) of such rights are unwilling to enter into a reasonable agreement to resolve the identified issue(s), the Optionee may, in its discretion, either accept the issue and execute the Option, thereby, subject to the terms of any definitive agreements (including the Lease), accepting the known issue, or terminate this Option, in which event the Owner will retain the Option Payment and this matter will be concluded.

7. **Right of Entry**

(a) **Investigations.** Beginning on the Effective Date and throughout the Option Period, Owner shall provide to Optionee, its employees, agents, contractors, and current or potential lenders or investors, reasonable access to the Property to conduct the Survey, evaluate, conduct and perform inspections, including soil and water testing, environmental assessments (Phase I and/or Phase II), engineering surveys, topographical, structural and geo-technical tests, and such other tests and inspections (collectively, the “**Investigations**”) that Optionee may deem necessary or advisable in its sole discretion, upon Optionee providing at least twenty-four (24) hours’ prior notice to Owner. Optionee shall keep the Property free from any liens arising out of any work performed, materials furnished, or obligations incurred by or on behalf of Optionee in connection with the Investigations. Optionee shall remove, or cause the removal of, any such lien by bond or otherwise within ten (10) days after Optionee becomes aware of the existence of such lien and if Optionee shall fail to do so, Owner may pay the amount necessary to remove such lien, without being responsible for investigating the validity thereof; provided, however, that the Optionee will be responsible to indemnify Owner in respect of the amounts paid to remove any such liens in accordance with § 7(b), *infra*.

(b) **Optionee Indemnification of Owner.** Optionee shall indemnify, defend and hold Owner harmless from and against all claims, losses, liabilities, damages, losses, costs or expenses (including, without limitation, reasonable attorneys’ fees) (collectively, “**Claims**”) which Owner may incur as a direct result of any act or wrongful omission by Optionee, its agents, or contractors in connection with the use of the Property; provided, however, that Optionee shall have no obligation or duty to indemnify, defend or hold Owner harmless from Claims (including, without limitation, Claims that the Property has declined in value) (i) arising out of, resulting from, or incurred in connection with the results or findings of Optionee’s Investigations, (ii) to the extent such Claims are due to the acts or wrongful omissions of Owner or its employees, agents or contractors during the Option Period, (iii) to the extent such Claims are for any consequential or indirect loss or damage, or (iv) to the extent such Claims exceed amounts recovered by Optionee under the insurances required to be taken out pursuant § 10, *infra*. Notwithstanding the foregoing, Optionee’s indemnification obligations shall not extend to any conditions on, at, or under the Property in existence as of the Effective Date, except and to the extent such conditions are aggravated by the gross negligence or willful misconduct of Optionee or its employees, agents or contractors. Optionee’s obligations hereunder shall survive the termination or expiration of the Option Period for two years.

8. **Owner’s Representations and Warranties.** Owner makes the following representations and warranties, which shall be true as of the Effective Date, the date the Option is exercised by Optionee, and shall survive the expiration or termination of this Agreement:

(a) **Authority.** Pursuant to a vote of the Owner’s Board at a duly noticed public meeting on February 10, 2020, Owner has the full legal right, power and authority, without the consent of any additional party or parties, to enter into this Agreement and to perform its obligations hereunder. The execution and delivery of this Agreement and the consummation of all transactions and performance of all obligations contemplated hereby have been duly authorized and will not conflict with, or result in a breach of any of the terms or provisions of, or constitute a default under, any document or instrument to which Owner is a party.

(b) **Binding on Owner.** Pursuant to a vote of the Owner’s Board at a duly noticed public meeting on February 10, 2020, the person executing this Agreement on behalf of Owner has full power and authority to bind Owner to the obligations set forth herein, and upon execution and delivery of the same, this Agreement will constitute a valid and binding instrument enforceable in accordance with its terms.

(c) **Exclusivity.** Owner represents and warrants it will not enter into any option, lease agreement, or similar transaction relating to the Premises with any other person or entity other than the Optionee during the Option Period (or Option Period as extended, if applicable).

(d) **Claims or Actions.** There are no current, pending or contemplated actions, administrative inquiries or proceedings, suits, arbitrations, claims or proceedings commenced by any person or governmental entity affecting Owner, the Property, or any portion thereof; provided, however, that this representation and warranty is further limited by § 8(g), *infra.*

(e) **No Violation of Laws.** To the best of Owner's knowledge, the Property is not in violation of any applicable federal, state, local or other laws, regulations or codes (the "**Laws**") and Owner has not received notice pertaining to the violation of any Laws affecting the Property or any portion thereof, and Owner has no knowledge of any facts which might be a basis for any such notice; provided, however, that this representation and warranty is further limited by § 8(g), *infra.*

(f) **Bankruptcy.** Owner has not (i) made a general assignment for the benefit of creditors; (ii) filed any voluntary petition in bankruptcy or suffered the filing of any voluntary petition by its creditors; (iii) suffered the appointment of a receiver to take possession of all or substantially all of its assets; or (iv) suffered the attachment or other judicial seizure of all or substantially all of its assets.

(g) **Fee Owner; Liens.** Owner holds the entire fee simple interest in the Property, except for the limitations on ownership detailed in the relevant Deed of Convenience from the Maine Department of Transportation to the Maine Port Authority, which is recorded at Book 36501 and Page 146 in the Cumberland County Registry of Deeds (a copy of which is attached hereto as **Exhibit D**) (the "**Deed**"), and any other encumbrances, covenants, and restrictions of record. Except as previously disclosed by Owner to Optionee in writing or as disclosed in the Title Report or Survey, Owner represents that there are no liens upon Owner's right, title or interest in the Property other than liens for monetary obligations for which Owner shall make best efforts to pursue a SNDA pursuant to § 9(a), *infra.* Except as otherwise listed in the Basic Option Provisions, Owner has not granted or entered into any other options, rights of first refusal, offers to purchase or lease or agreements to sell or lease all or any part of the Property ("**Third Party Interests**") other than with Optionee pursuant hereto.

(h) **Disclaimer of Certain Representations and Warranties.** Notwithstanding any of the foregoing representations and warranties, Owner makes no representations or warranties as to the legal or factual status of: land use and environmental matters; fitness of the Premises or any portion thereof for any particular purpose; water quality or quantity; the condition or quality of the soil; inchoate or unrecorded liens; or the existence, status, or condition of access to, or public utilities serving the Premises. Further reference is made to certain recorded covenants and restrictions, and all conditions and protections affecting the Premises as set forth in the records of the Maine Department of Environmental Protection's ("**DEP**") Voluntary Response Action Program ("**VRAP**") referencing the former Portland Gas Works site, some or all of which are listed in the relevant Deed (**Exhibit D**).

During the Option Period, Owner shall timely notify Optionee in writing of any changes affecting any of the foregoing representations and warranties.

9. **Owner's Covenants.** Owner hereby covenants and agrees that, from and after the Effective Date, though the Option Period and, if the Option is exercised, thereafter during the period up to and including the Closing:

(a) **Owner Mortgages.** Owner shall use commercially reasonable efforts to deliver to Optionee a subordination, non-disturbance and attornment agreement(s), in form and substance reasonably

acceptable to Optionee (each, a “SNDA”) from the current holder(s) of any deed of trust, mortgage or other lien encumbering the Property. Owner shall make all payments required under any loan secured by a mortgage or deed of trust encumbering the Property and pay all real property taxes and assessments levied or imposed against the Property and before any of the same become delinquent. During the Option Period, Owner shall not mortgage or otherwise encumber its interest in the Property without providing Optionee with fifteen (15) days prior written notice thereof and an SNDA reasonably acceptable to Optionee from such holder(s) of any deed of trust, mortgage or other lien encumbering the Property. Notwithstanding anything in this § 9(a), Optionee is aware of the Maine Department of Transportation’s residual interests in the Land as discussed in the Deed (Ex. D), and the Owner shall use commercially reasonable efforts to obtain such assurances or documents from the Department of Transportation as the Optionee may reasonably require.

(b) **Mortgage of Optionee’s Interest.** Optionee shall have the right to obtain financing from one or more Financing Parties (such term to be defined in the Lease) by way of a direct or collateral assignment of this Agreement to a Financing Party, after providing seven days’ written notice to the Owner. Owner agrees that, amongst other Financing Party protections and cure rights, Owner shall (a) acknowledge and consent to, amongst other things, Optionee assigning the Lease and the Easements and any other easements benefitting the Premises by way of direct or collateral assignment to a Financing Party, assignment of the Easements and a lease of the storage facility from such Financing Party to Optionee, grant the Financing Parties a sublease or other real property interest in Optionee’s interest in and to the Premises, grant a first priority security interest in Optionee’s interest in the improvements and/or the Lease and Optionee’s other interests in and to the Premises, including, but not limited to, any Easements, rights of way or other similar interests; and (b) agree to execute such subordination agreements, consents, estoppels and other acknowledgements of the foregoing as Optionee or the Financing Parties may request. Notwithstanding the foregoing, Owner retains discretion to decline to acknowledge, consent, and/or agree to the items listed in this § 9(b), provided that such acknowledgement, consent, and/or agreement shall not be unreasonably withheld. Notwithstanding anything in this § 9(b), Optionee is aware of the Maine Department of Transportation’s residual interests in the Land as discussed in the Deed (Ex. D), and the Owner shall use commercially reasonable efforts to obtain such additional assurances or documents from the Department of Transportation as the Optionee may reasonably require.

(c) **Permits; Cooperation with Development.** Optionee shall have the right to apply for applications for land use entitlements, environmental approvals and permits, site plans, and subdivision or minor land division requests and parcel maps. Owner shall cooperate with Optionee in Optionee’s efforts to obtain such approvals by executing such documents as are reasonably necessary. Nothing in this § 9(c) relieves Optionee’s obligations further discussed in § 7, *supra*; by way of example only and not limitation, these obligations include Optionee’s obligation to pay for its investigations and indemnify Owner for same.

(d) **Use of the Property.** During the term of this Option, Owner will not commit waste on the Property or otherwise materially change the Property, nor will Owner agree to grant or permit any easement, lease, license, right of access or other possessory right in the Premises to any third party without the prior written consent of Optionee. Owner shall comply with all Laws applicable to the Property.

10. **Insurance.** Effective as of the date Optionee enters the Property for the Investigations, and continuing through the Option Period, Optionee shall obtain and maintain liability insurance for its activities on the Property. Such insurance will be in the amount of One Million Dollars (\$1,000,000) per occurrence and a Ten Million Dollar (\$10,000,000) policy limit, and will name Owner as an additional insured but only for liability arising out of Optionee’s operations on the Property including, without limitation, coverage for damage or harm caused or incurred by Optionee and its employees and agents.

11. **Assignment.** Optionee shall have the right to assign its rights and obligations under this Agreement to any Optionee affiliate, third party, and/or party providing financing to Optionee only with the prior written consent of Owner. Owner shall not have any right to assign its rights and obligations under this Agreement without Optionee's prior written consent, not to be unreasonably withheld, conditioned or delayed.

12. **Termination.**

(a) **Default.** Each of the following events shall constitute an event of default by the applicable party and shall permit the non-defaulting party to terminate this Agreement and pursue the remedies at law described below, which, as to Owner, shall consist solely of the remedies at law described in Section 11(b) below, and, as to Optionee, shall consist solely of the remedies at law contained in Section 11(c) below.

(i) The failure of Optionee to pay the amount required to be paid hereunder when due.

(ii) The failure of either party to perform any of the other terms, agreements or conditions set forth in this Agreement, where such failure continues for thirty (30) days (or such longer period required to cure such failure, not to exceed sixty (60) days), after receipt of written notice from the other party; or

(iii) A party files for bankruptcy or has an involuntary petition in bankruptcy or a request for appointment of a receiver filed against it, where such involuntary petition or request is not dismissed within ninety (90) days after filing.

(b) **Owner Remedies – Liquidated Damages.** EXCEPT FOR OPTIONEE'S INDEMNIFICATION OBLIGATIONS CONTAINED IN THIS AGREEMENT, OWNER'S SOLE REMEDY AT LAW UPON AN EVENT OF DEFAULT BY OPTIONEE SHALL BE TO RETAIN THE OPTION PAYMENTS IT HAS THEN RECEIVED AS LIQUIDATED DAMAGES FOR SUCH DEFAULT OF OPTIONEE, AND IN SUCH EVENT, OPTIONEE SHALL HAVE NO FURTHER RIGHT WHATSOEVER TO LEASE THE PREMISES AND OWNER SHALL HAVE NO RIGHT TO SEEK ANY FURTHER DAMAGES OR REMEDY AT LAW. THE PARTIES AGREE THAT IT WOULD BE IMPRACTICAL AND/OR EXTREMELY DIFFICULT TO ASCERTAIN THE ACTUAL DAMAGES THAT WOULD BE SUFFERED BY OWNER AS A RESULT OF ANY SUCH DEFAULT BY OPTIONEE, AND THAT UNDER THE CIRCUMSTANCES EXISTING AS OF THE DATE OF THIS AGREEMENT, THE LIQUIDATED DAMAGES PROVIDED FOR IN THIS SECTION REPRESENT A REASONABLE ESTIMATE OF THE DAMAGES WHICH OWNER WILL INCUR AS A RESULT OF ANY SUCH DEFAULT BY OPTIONEE. SUCH RETENTION OF THE OPTION PAYMENTS BY OWNER IS INTENDED TO CONSTITUTE LIQUIDATED DAMAGES TO OWNER AND SHALL NOT BE DEEMED TO CONSTITUTE A FORFEITURE OR PENALTY.

(c) **Optionee Remedies – Liquidated Damages.** OPTIONEE'S SOLE REMEDY AT LAW UPON AN EVENT OF DEFAULT BY OWNER SHALL BE TO RECOVER AN AMOUNT EQUAL TO THE OPTION PAYMENT(S) IT HAS THEN PAID AS LIQUIDATED DAMAGES AS RECOMPENSE FOR SUCH DEFAULT OF OWNER. THE PARTIES AGREE THAT IT WOULD BE IMPRACTICAL AND/OR EXTREMELY DIFFICULT TO ASCERTAIN THE ACTUAL DAMAGES THAT WOULD BE SUFFERED BY OPTIONEE AS A RESULT OF ANY SUCH DEFAULT BY OWNER, AND THAT UNDER THE CIRCUMSTANCES EXISTING AS OF THE DATE OF THIS AGREEMENT, THE LIQUIDATED DAMAGES PROVIDED FOR IN THIS SECTION REPRESENT A REASONABLE ESTIMATE OF THE DAMAGES WHICH OWNER WILL INCUR AS A RESULT OF ANY SUCH DEFAULT BY OWNER. SUCH RECOVERY OF AN AMOUNT EQUAL TO THE OPTION

PAYMENTS TO OWNER IS INTENDED TO CONSTITUTE LIQUIDATED DAMAGES FOR OPTIONEE AND SHALL NOT BE DEEMED TO CONSTITUTE A FORFEITURE OR PENALTY.

(d) **Equitable and Statutory Remedies.** Notwithstanding any of the foregoing, both parties retain all rights to pursue equitable remedies (e.g. injunctive relief) and non-monetary statutory relief (e.g. forcible entry and detainer) as may be cognizable against the other. In no event will money damages, costs of suit, attorney's fees, interest, or any other amounts of money of any description be awarded to either party against the other to exceed the amount of liquidated damages described in § 12(b)-(c), *supra*. In the event the Parties are unable to negotiate to a mutually agreeable Lease, the maximum equitable remedy available will be an order to continue negotiating in good faith for a reasonable amount of time; in no event can either party be ordered to enter into a Lease as specific performance of this Option.

(e) **Termination by Optionee Absent Default by Owner.** If Optionee determines, in its sole and absolute discretion, that the Land is unsuitable or undesirable for leasing by Optionee, Optionee shall have the right to terminate this Agreement by giving written notice thereof to Owner and this Agreement shall terminate on the date specified in Optionee's written notice. If the Agreement is terminated during the Option Period pursuant to the preceding sentence, then neither party shall have any further rights or obligations hereunder; provided, however, that Owner shall retain all Option Payments it shall have received hereunder prior to the date of termination of the Option Agreement and any provisions hereof that expressly survive termination of this Agreement shall remain in effect.

13. **Miscellaneous.**

(a) **Investigatory Results.** For any Investigation undertaken by Optionee that involved entry onto the Premises by Optionee or any of its employees, contractors, or agents of any kind, Optionee will provide a copy of such investigatory reports, findings, or results of any kind to Owner within fourteen (14) days of such investigatory reports, findings, or results, at no charge to Owner. These materials may be provided electronically. By way of example only and not limitation, expressly included in this duty to turn over reports and findings are any soil sample findings and land survey results.

(b) **Waiver of Jury Trial and Selection of Venue.** EACH PARTY HERETO WAIVES, TO THE FULL EXTENT PERMITTED BY LAW, THE RIGHT TO A JURY TRIAL IN ANY LITIGATION CONCERNING THIS AGREEMENT OR ANY DEFENSE, CLAIM, COUNTERCLAIM, CLAIM OF SET-OFF OR SIMILAR CLAIM OF ANY NATURE. THE PARTIES AGREE THAT ANY DISPUTES OVER THIS AGREEMENT WILL BE LITIGATED EXCLUSIVELY IN THE MAINE STATE COURTS, AND WAIVE THE RIGHT TO PURSUE ANY DEFENSE, CLAIM, COUNTERCLAIM, CLAIM OF SET-OFF OR SIMILAR CLAIM OF ANY NATURE IN ANY OTHER FORUM. EACH PARTY CONSENTS IN ADVANCE TO PERSONAL JURISDICTION IN THE MAINE STATE COURTS.

(c) **Counterparts.** This Agreement may be executed in counterparts. All executed counterparts shall constitute one agreement, and each counterpart shall be deemed an original. The parties hereby agree signatures transmitted by facsimile or email shall be legal and binding and shall have the same full force and effect as if an original of this Agreement had been delivered and hereby waive any defenses to the enforcement of the terms of this Agreement based on the foregoing forms of signature.

(d) **Time Periods.** If any date for exercise of any right, giving of any notice, or performance of any provision of this Agreement falls on a Saturday, Sunday or holiday, the time for performance will be extended to the next business day.

(e) **No Waiver.** The failure of either party to require strict performance by the other party of any provision of this Agreement will not be considered a waiver of any other provision, nor prevent any party from enforcing that or any other performance at any time thereafter.

(f) **Further Assurances.** The parties shall at their own cost and expense execute and deliver such further documents and instruments and shall take such other actions as may be reasonably required or appropriate to carry out the intent and purposes of this Agreement.

(g) **Governing Law.** This Agreement is made pursuant to, and shall be construed and enforced in accordance with, the laws of the State of Maine.

(h) **Amendments; Entire Agreement.** This Agreement contains the entire agreement between the parties and is intended by the parties to set forth their entire agreement with respect to the subject matter hereof, and any agreement hereafter made shall be ineffective to change, modify or discharge this Agreement, in whole or in part, unless such agreement is in writing and signed by the party against whom enforcement of the change, modification or discharge is sought. Owner and Optionee agree that all prior or contemporaneous oral or written agreements between or amongst themselves or their agents are merged in or revoked by this Agreement.

(i) **Partial Invalidity.** If any term or provision of this Agreement is, to any extent, determined by a court of competent jurisdiction to be invalid or unenforceable, the remainder of this Agreement shall not be affected thereby, and each remaining term and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

(j) **Successors and Assigns.** This Agreement, and the rights and obligations of the parties hereto, shall be binding upon and inure to the benefit of the parties and their respective successors, heirs, executors, administrators and permitted assigns.

(k) **Interpretation.** Each party acknowledges that it has been represented by or had the opportunity to be represented by legal counsel in its review of this Agreement and that any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement or any amendments or exhibits hereto.

(l) **Survival of Terms.** All covenants, representations and warranties contained in this Agreement shall survive Closing. Those provisions in this Agreement which by their terms are intended to be or must be performed in whole or in part after the Closing or after termination of this Agreement shall survive Closing and the termination of this Agreement.

(m) **Headings.** The headings herein are inserted only for convenience and shall have no effect in interpreting the meaning of any provision.

(n) **Time is of the Essence.** Time is of the essence in this Agreement and each and every provision of this Agreement.

(o) **Notices.** All notices, approvals, disapprovals or elections required or permitted to be given under this Agreement shall be in writing and shall be (i) delivered personally; (ii) mailed by certified or registered mail, return receipt requested; (iii) sent by email transmission; (iv) sent by facsimile transmission; or (v) sent by Federal Express or other professional carrier, to the parties at the addresses listed below or at such other addresses as shall be designated by Optionee or Owner in writing. Except as expressly set forth in this Agreement, notices shall be deemed given upon delivery or tender of delivery to the intended recipient; provided, however, that (x) notice sent by email or facsimile shall only be deemed received when

both (A) the sender has electronic confirmation that it was sent to all parties (and has retained a confirmation of the delivery) and (B) at least one addressee entitled to notice for the applicable party has acknowledged receipt of the transmission; and (y) if a post office box is provided as the notice address, notice shall be deemed to have been given or made five (5) days after being deposited in the United States mail with appropriate postage prepaid. Copies of notices are for informational purposes only, and a failure to give or receive copies of any notice shall not be deemed a failure to give notice.

Owner Address

Maine Port Authority
Attn: Jon Nass, CEO
460 Commercial Street
Portland, ME 04101

Phone: 207-200-2400
E-mail: jon.nass@maineports.com

With a copy to:

Office of the Attorney General
Attn: Timothy Steigelman, AAG
6 State House Station
Augusta, ME 04333

Phone: 207-626-8509
E-mail: timothy.steigelman@maine.gov

Optionee Address

Attn: Thomas O'Shaughnessy
230 Park Avenue,
19th Floor
New York
10169
Phone: (347) 263-3213

With a copy to:

Attn: General Counsel
Amber Infrastructure Limited
3 More London Riverside
London, United Kingdom
SE1 2AQ

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, and intending to be bound hereby, the parties hereto have executed this Agreement on the date written above.

“Owner”

Maine Port Authority
a State of Maine “body both corporate and politic.” 23 M.R.S. § 4420.

By: 
Name: Jon Nass
Title: Chief Executive Officer

“Optionee”

Maine International Cold Storage Facility LLC,
a Delaware limited liability company

By: 
Name: Tom O'Shaughnessy
Title: President

Exhibit A

**Depiction of the Land
(entitled "Existing Conditions," "IMT WEST COLD STORAGE FACILITY," July 2015)**

Exhibit B

Letter of Intent from Amber Infrastructure Group (January 27, 2020)

Exhibit C

**Design-Build Agreement between Maine Port Authority Woodard & Curran Constructors, LLC
(Feb. 13, 2019, and as amended May 28, 2019)(without exhibits)**

Exhibit D

**Deed of Convenience
Book 36501, Page 146 (March 11, 2020)**

3. FINANCIAL CAPACITY

3.1 ESTIMATED COSTS

The construction budget for the proposed development is \$28,100,000.

3.2 FINANCING

A copy of a letter verifying the Applicant's financial capacity to undertake the project is attached to this Section.

3.3 CERTIFICATE OF GOOD STANDING

A copy of the Secretary of State's Certificate of Good Standing for Maine International Cold Storage Facility, LLC (the Applicant) is attached to this Section.

3.4 LIST OF ATTACHMENTS

- Financial Capacity Letter; and
- Certificate of Good Standing.

Ms Christine Grimando
AICP Planning Director
Planning & Urban Development
Department 389 Congress Street 4th Floor
Portland
ME 04101

February 28, 2020

Re: the Maine International Cold Storage Facility ("MICSF")

Dear Ms. Grimando,

It is my pleasure to provide this letter confirming Amber Infrastructure Group's ("Amber") relationship with Maine International Cold Storage Facility LLC.

MICSF LLC is a wholly owned subsidiary of Amber and has been created as a Special Purpose Entity to undertake the development, financing, construction, ownership and operation of the proposed MICSF to be constructed in partnership with the Port Authority at the Portland Marine Terminal.

Amber is an international infrastructure developer and fund manager with over \$8bn under management. Amber invests in eight countries internationally across six funds. Amber's core business focuses on sourcing, developing and investing in infrastructure sectors that support the lives of people, homes and businesses internationally. Amber is headquartered in London with offices in Europe, North America and Australia and employs approximately 125 infrastructure professionals.

I have attached Amber's latest set of annual audited accounts for your review. These demonstrate our available cash resources which exceed £107m (\$139m) which exceed the anticipated financing requirement of the development and financing of the MICSF.

Should you require any further information please do not hesitate to contact me.

Yours sincerely



Tom O'Shaughnessy, President, Amber Infrastructure LLC

Delaware

The First State

Page 1

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "MAINE INTERNATIONAL COLD STORAGE FACILITY LLC" IS DULY FORMED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE TWENTY-SEVENTH DAY OF FEBRUARY, A.D. 2020.

AND I DO HEREBY FURTHER CERTIFY THAT THE SAID "MAINE INTERNATIONAL COLD STORAGE FACILITY LLC" WAS FORMED ON THE TWENTY-SEVENTH DAY OF FEBRUARY, A.D. 2020.

AND I DO HEREBY FURTHER CERTIFY THAT THE ANNUAL TAXES HAVE BEEN ASSESSED TO DATE.



A handwritten signature in black ink, appearing to read "JBullock", is written over a horizontal line. Below the line, the text "Jeffrey W. Bullock, Secretary of State" is printed.

7873797 8300

SR# 20201654726

You may verify this certificate online at corp.delaware.gov/authver.shtml

Authentication: 202476888

Date: 02-27-20

4. TECHNICAL ABILITY

On behalf of the Applicant, Woodard & Curran is preparing this application for the proposed development. Woodard & Curran has extensive experience with design for site development projects and specifically on the peninsula within the City of Portland. Woodard & Curran, a 1,000-person Portland-based firm, has provided engineering services to the public and private sector for over 40 years, including permitting, civil/site engineering, stormwater and construction management services.

Woodard & Curran has been involved in numerous development projects in the Greater Portland Area and has developed working relationships with various consultants who are called upon, as necessary, to provide specialized services. The project is also supported by a design team including CWS Architects, Pat Carroll Landscape Architects, Thornton Tomasetti Structural Engineers and Bartlett Electrical Engineering. Copies of resumes or project examples can be provided upon request.

5. NOISE

An acoustic study was performed for the proposed refrigeration facility. The study is summarized in the Noise Modeling Analysis Report by Tech Environmental dated February 25, 2020 attached to this Section. The acoustic modeling included thirty-two residential receptors and three property line receptors. Two modeling scenarios were performed: daytime, which consisted of twenty refrigerated trucks and one condenser, and nighttime, which consisted of ten refrigerated trucks and one condenser.

The results of the acoustic study were compared to the Maine Department of Environmental Protection (Maine DEP) Noise Policy. One-third octave bands were not available for the equipment data used in the model, so as per Maine DEP regulations a 5-dBA penalty was added to the predicted project sound levels. The pre-existing sound levels are in the 50-60 dBA range for daytime and nighttime sound levels. The study demonstrates that project operations will not cause an increase in the existing sound levels. Tables 2 in the letter report presents the results from the model and demonstrate that the project will comply with the Maine DEP 06-096 Chapter 375 (10) Control of Noise.

Construction activities will be limited to the hours permitted by the City. HVAC and primary mechanical equipment will be located and screened to mitigate noise impacts.

5.1 LIST OF ATTACHMENTS

- Noise Modeling Analysis prepared by Tech Environmental

February 25, 2020

Mr. Jedd Steinglass, LSP
Project Manager
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Ref 4496

Re: Noise Modeling Analyses for SLODA- Compliance Demonstration

Dear Mr. Steinglass:

This letter report presents the results of an acoustic study for the proposed refrigeration facility located at 40 West Commercial Street, Portland, Maine (herein referred to as the Project). The proposed project is a total of 125,572 square feet, with 12 loading docks. The current Project location is a vacant lot that is located in a waterfront port development zone.

The acoustic modeling includes 32 residential receptors, and 3 property line receptors. Two modeling scenarios were performed:

1. daytime: which consists of up to 20 refrigerated trucks, 1 outdoor condenser, and
2. nighttime: which consists of having 10 refrigerated trucks, 1 outdoor condenser.

One-third octave bands were not available for the equipment data used in the model, so as per Maine DEP regulations a 5 dBA penalty was added to the predicted project sound levels.

The results of the acoustic study were compared to the Maine Department of Environmental Protection (Maine DEP) Noise Policy and the City of Portland Zoning Bylaw. **Tables 1** and **2** present the results from the model and demonstrate that the Proposed Project will comply with both the Maine DEP Noise Policy and the City of Portland Code of Ordinance.

1.0 THE DECIBEL SCALE FOR SOUND

All sounds originate with a source – a human voice, vehicles on a roadway, or an airplane overhead. The sound energy moves from the source to a person's ears as sound waves, which are minute variations of air pressure. The loudness of a sound depends on the sound pressure level, which has units of decibel (dB). The decibel scale is logarithmic to accommodate the wide range of sound intensities to which the human ear is subjected. On this scale, the quietest sound we can hear is 0 dB, while the loudest is 120 dB. Every 10-dB increase is perceived as a doubling of loudness. Most sounds we hear in our daily lives have sound pressure levels in the range of 30 dB to 90 dB.

Community noise studies and regulations use an A-weighting scale (dBA) when measuring sound pressure levels as this approximates the response of the human ear to sounds, we experience in everyday life. Typical sound levels associated with various activities and environments are presented in **Figure 1**. Here are examples of sound levels we all encounter. A quiet suburban area at night without any traffic typically has an average sound level of 40 to 45 dBA. The freight train you hear in the distance may be 50 dBA, and crickets and tree frogs in the summer sing a sound level of 55 dBA. Two people having a conversation in a normal tone of voice will hear each other speak at 65 dBA. Standing near a road, a car passing by can produce 75 dBA, and a truck passing by is louder at 80 dBA.

There are various measures of sound pressure designed for different purposes. To establish the background ambient sound level in an area, the L_{90} metric, which is the sound level exceeded 90 percent of the time, is typically used. The L_{90} can also be thought of as the level representing the quietest 10 percent of any time period. The L_{10} metric, which is the sound level exceeded 10 percent of the time is typically used to assess transient noise highway or rail activities. The L_{eq} , or equivalent sound level, is the steady-state sound level over a period of time that has the same acoustic energy as the fluctuating sounds that actually occurred during that same period. It is commonly referred to as the average sound level. The L_{max} , or maximum sound level, represents the one second peak level experienced during a given time period. These are a broadband sound pressure measure, i.e., it includes sounds at all frequencies.

Sound level measurements typically include an analysis of the sound spectrum into its various frequency components to determine tonal characteristics. The unit of frequency is Hertz (Hz), measuring the cycles per second of the sound pressure waves, and typically the frequency analysis examines eleven octave bands from 16 to 16,000 Hz.

2.0 APPLICABLE NOISE REGULATIONS

This section provides a summary of the Maine Department of Environmental Protection (Maine DEP) Noise Policy and the City of Portland Code of Ordinance.

2.1 Maine Department of Environmental Protection Noise Policy

The Maine Department of Environmental Protection (Maine DEP) 06-096 Chapter 375 (10) Control of Noise. There are three criteria that could apply, the first is at the industrial fenceline, Chapter 375 (10) (1) (a) (i), and the second is at the fenceline of the residential locations, Chapter 375 (10) (1) (a) (ii). Both of these assume that the background is less than these limits. If the background is great than these limits because of existing background sound then the limit for the industrial fenceline, the residential fenceline, or possibly both could be an incremental increase Chapter 375 (10).

(1)(a)(i) At any property line of the development or contiguous property owned by the developer, whichever is farther from the proposed development's regulated sound sources:

75 dBA at any time of day.

(1)(a)(ii) At any protected location in an area for which the zoning, or, if unzoned, the existing use or use contemplated under a comprehensive plan, is not predominantly commercial, transportation, or industrial;

*60 dBA between 7:00 a.m. and 7:00 p.m.
(the "daytime hourly limit"), and
50 dBA between 7:00 p.m. and 7:00 a.m.
(the "nighttime hourly limit").*

Tech was provided with the "City of Portland Baseline Sound Monitoring Report" which included sound measurements taken near the project site, at Location: 10- Casco Bay Bridge, where the lowest measured day time and night time sound levels were 66 dBA and 57 dBA respectively. Location 3- Fore and Union, is a representative location for the residential area and the lowest measured day and nighttime sound levels were 60 dBA and 54 dBA.

Based on the provided Maine regulations "Notwithstanding the above, the developer need not measure or estimate the pre-development ambient hourly sound levels at a protected location if he demonstrates, by estimate for example, that the hourly sound levels resulting from routine operation of the development will not exceed 50 dBA in the daytime or 40 dBA at night" The pre- existing background of the project location and residential area are above 50 dBA (day) and 40 dBA (night). Which demonstrates that the developer does not need to take measurements and instead can use the limits presented in Chapter 375 (10) stated above.

2.2 City of Portland Code of Ordinance

The Project is located in a zoning area labeled as waterfront port development. The City of Portland Code of Ordinance Chapter 14 Sec. 14-320.3 states the following:

All uses in the waterfront port development zone shall comply with the following standards.

(b) Noise:

1. The level of sound, measured by a sound level meter with frequency weighting network (manufactured according to standards prescribed by the American National Standards Institute, Inc.), inherently and recurrently generated within the waterfront port development zone between the hours of 7:00 p.m. and 7:00 a.m. from industrial facilities or operation commenced on or after July 1, 1988, shall not exceed fifty-five (55) decibels on the A scale at or within the boundaries of any residential zone, except for sound from construction activities, sound from traffic on public streets, sound from temporary activities such as festivals, and sound created as a result of, or relating to, an emergency, including sound from emergency warning signal devices.

To comply with the City of Portland Code of ordinance the proposed project predicted sound levels cannot exceed fifty-five (55) decibels on the A scale at or within the boundaries of any residential zone.

3.0 ACOUSTIC MODELING APPROACH AND RESULTS

This section provides a summary of the acoustic modeling approach and results.

3.1 Acoustic Modeling Approach

The future sound levels from the Project, when it is producing maximum electrical power, were calculated with the Cadna/A acoustic model. Cadna/A is a three-dimensional model for sound propagation and attenuation based on International Standard ISO 9613¹. Atmospheric absorption, the process by which sound energy is absorbed by the air, was calculated using ANSI S1.26-1995.² Digital terrain data for the Project areas were analyzed to obtain terrain heights. The model assumes the most-favorable sound propagation conditions, as occur under downwind conditions or during a ground-based temperature inversion on a clear night. Under these atmospheric conditions, sound travels further than if a person is upwind from a source and the atmosphere is well mixed, which would dampen the sound. Tech used refrigerated truck sound data from past noise projects to model twenty (20) refrigerated trucks for the daytime, and ten (10) refrigerated trucks during the nighttime, and was provided sound data to model one (1) condenser. A safety factor of 2 dBA was added onto each sound source.

Figure 2 shows modeling receptors included in Cadna/A representing both the residential and property line receptors.

3.2 Acoustic Modeling Results

Presented in this section is the predicted daytime and night sound levels for the Project and a comparison of compliance to the Maine DEP Noise Policy and Portland Noise Bylaw. Attachment A presents the acoustic modeling results.

Table 1 presents the predicted project daytime and nighttime sound levels, and one-third octave bands were not available for the equipment data used in the model, as per Maine DEP regulations a 5 dBA penalty was added to the predicted project sound levels. The predicted sound level increases were zero decibels above daytime and nighttime sound levels limits. The predicted project sound levels compared to the City of Portland noise limits are presented in **Table 2**, the predicted sound level increases were zero decibels above daytime and nighttime sound level limits.

Decibel-level contour maps of the predicted Project daytime and nighttime sound levels are presented in **Figures 3 and 4**.

¹ International Standard, ISO 9613-2, Acoustics – Attenuation of Sound During Propagation Outdoors, -- Part 2 General Method of Calculation.

² American National Standards Institute, ANSI S1.26-1995, “American National Standard Method for the Calculation of the Absorption of Sound by the Atmosphere,” 1995.

**Table 1:
Predicted Project Sound Levels Compliance with Maine DEP Noise Limits**

Receptor #	Address	Predicted Project Sound Levels (dBA)		Predicted Project Sound Levels (dBA) with additional 5 dBA for Tonal Sound		Maine DEP Noise Limits (dBA)		Compliance	
		Day	Night	Day	Night	Day	Night	Day	Night
1	65 Summer St 1FL	34	33	39	38	60	50	Yes	Yes
2	65 Summer St 2FL	34	33	39	38	60	50	Yes	Yes
3	51 Summer St 1FL	34	33	39	38	60	50	Yes	Yes
4	51 Summer St 2FL	34	33	39	38	60	50	Yes	Yes
5	49 Summer St 1FL	34	32	39	37	60	50	Yes	Yes
6	49 Summer St 2FL	34	33	39	38	60	50	Yes	Yes
7	45 Summer St 1FL	32	30	37	35	60	50	Yes	Yes
8	45 Summer St 2FL	33	32	38	37	60	50	Yes	Yes
9	33 Summer St 1FL	30	28	35	33	60	50	Yes	Yes
10	33 Summer St 2FL	31	29	36	34	60	50	Yes	Yes
11	28 Summer St 1FL	28	26	33	31	60	50	Yes	Yes
12	28 Summer St 2FL	29	27	34	32	60	50	Yes	Yes
13	265 York St 1FL	29	27	34	32	60	50	Yes	Yes
14	265 York St 2FL	32	30	37	35	60	50	Yes	Yes
15	78 Salem St 1FL	32	31	37	36	60	50	Yes	Yes
16	78 Salem St 2FL	33	32	38	37	60	50	Yes	Yes
17	82 Salem St 1FL	34	33	39	38	60	50	Yes	Yes
18	82 Salem St 2FL	35	35	40	40	60	50	Yes	Yes
19	90 Salem St 1FL	33	32	38	37	60	50	Yes	Yes
20	90 Salem St 2FL	34	33	39	38	60	50	Yes	Yes
21	84R Salem St 1FL	31	30	36	35	60	50	Yes	Yes
22	84R Salem St 2FL	32	32	37	37	60	50	Yes	Yes
23	88 Salem St 1FL	31	29	36	34	60	50	Yes	Yes
24	88 Salem St 2FL	32	32	37	37	60	50	Yes	Yes
25	263 York St 1FL	29	27	34	32	60	50	Yes	Yes
26	263 York St 2FL	31	29	36	34	60	50	Yes	Yes
27	259 York St 1FL	28	26	33	31	60	50	Yes	Yes
28	259 York St 2FL	30	28	35	33	60	50	Yes	Yes
29	251 York St 1FL	28	26	33	31	60	50	Yes	Yes
30	251 York St 2FL	29	27	34	32	60	50	Yes	Yes
31	24 Brackett St 1FL	28	26	33	31	60	50	Yes	Yes
32	24 Brackett St 2FL	30	27	35	32	60	50	Yes	Yes
33	Property Line Receptor 1	56	56	61	61	75	75	Yes	Yes
34	Property Line Receptor 2	42	39	47	44	75	75	Yes	Yes
35	Property Line Receptor 3	69	64	74	69	75	75	Yes	Yes

**Table 2:
Predicted Project Sound Levels Compliance with City of Portland Noise Limits**

Receptor #	Address	Predicted Project Sound Levels (dBA)		City of Portland Noise Limits (dBA)		Compliance	
		Day	Night	Day	Night	Day	Night
1	65 Summer St 1FL	34	33	55	55	Yes	Yes
2	65 Summer St 2FL	34	33	55	55	Yes	Yes
3	51 Summer St 1FL	34	33	55	55	Yes	Yes
4	51 Summer St 2FL	34	33	55	55	Yes	Yes
5	49 Summer St 1FL	34	32	55	55	Yes	Yes
6	49 Summer St 2FL	34	33	55	55	Yes	Yes
7	45 Summer St 1FL	32	30	55	55	Yes	Yes
8	45 Summer St 2FL	33	32	55	55	Yes	Yes
9	33 Summer St 1FL	30	28	55	55	Yes	Yes
10	33 Summer St 2FL	31	29	55	55	Yes	Yes
11	28 Summer St 1FL	28	26	55	55	Yes	Yes
12	28 Summer St 2FL	29	27	55	55	Yes	Yes
13	265 York St 1FL	29	27	55	55	Yes	Yes
14	265 York St 2FL	32	30	55	55	Yes	Yes
15	78 Salem St 1FL	32	31	55	55	Yes	Yes
16	78 Salem St 2FL	33	32	55	55	Yes	Yes
17	82 Salem St 1FL	34	33	55	55	Yes	Yes
18	82 Salem St 2FL	35	35	55	55	Yes	Yes
19	90 Salem St 1FL	33	32	55	55	Yes	Yes
20	90 Salem St 2FL	34	33	55	55	Yes	Yes
21	84R Salem St 1FL	31	30	55	55	Yes	Yes
22	84R Salem St 2FL	32	32	55	55	Yes	Yes
23	88 Salem St 1FL	31	29	55	55	Yes	Yes
24	88 Salem St 2FL	32	32	55	55	Yes	Yes
25	263 York St 1FL	29	27	55	55	Yes	Yes
26	263 York St 2FL	31	29	55	55	Yes	Yes
27	259 York St 1FL	28	26	55	55	Yes	Yes
28	259 York St 2FL	30	28	55	55	Yes	Yes
29	251 York St 1FL	28	26	55	55	Yes	Yes
30	251 York St 2FL	29	27	55	55	Yes	Yes
31	24 Brackett St 1FL	28	26	55	55	Yes	Yes
32	24 Brackett St 2FL	30	27	55	55	Yes	Yes

4.0 CONCLUSION

Tech performed an acoustic modeling study for the proposed refrigeration facility located at 40 West Commercial Street. The future sound levels from the Project, were calculated with the Cadna/A acoustic model. The model included twenty (20) refrigerated trucks for the daytime, and ten (10) refrigerated trucks during the nighttime, and one (1) condenser; and 32 residential receptors, and 3 property line receptors. One-third octave bands were not available for the equipment data used in the model, so as per Maine DEP regulations a 5 dBA penalty was added to the predicted project sound levels.

The study demonstrated that because the pre-existing sound levels are in the 50-60 dBA range for day time and nighttime sound levels, the Project operations will not cause an increase in the existing sound levels. The results of the acoustic study were then compared to the Maine Department of Environmental Protection (Maine DEP) Noise Policy and the City of Portland Zoning Bylaw. If Project includes the equipment that were modeled and the surrounding area does not have a pre-existing tonal sound, there would be no observed tonal sounds predicted at the site property lines or the residential receptors. Therefore, the Projects will comply with both the Maine DEP Noise Policy and the City of Portland Code of Ordinance.

Please call if you have any questions regarding this report.

Sincerely,

TECH ENVIRONMENTAL, INC.



Michael T. Lannan, P.E.

President

4496/ Letter Report December 2019

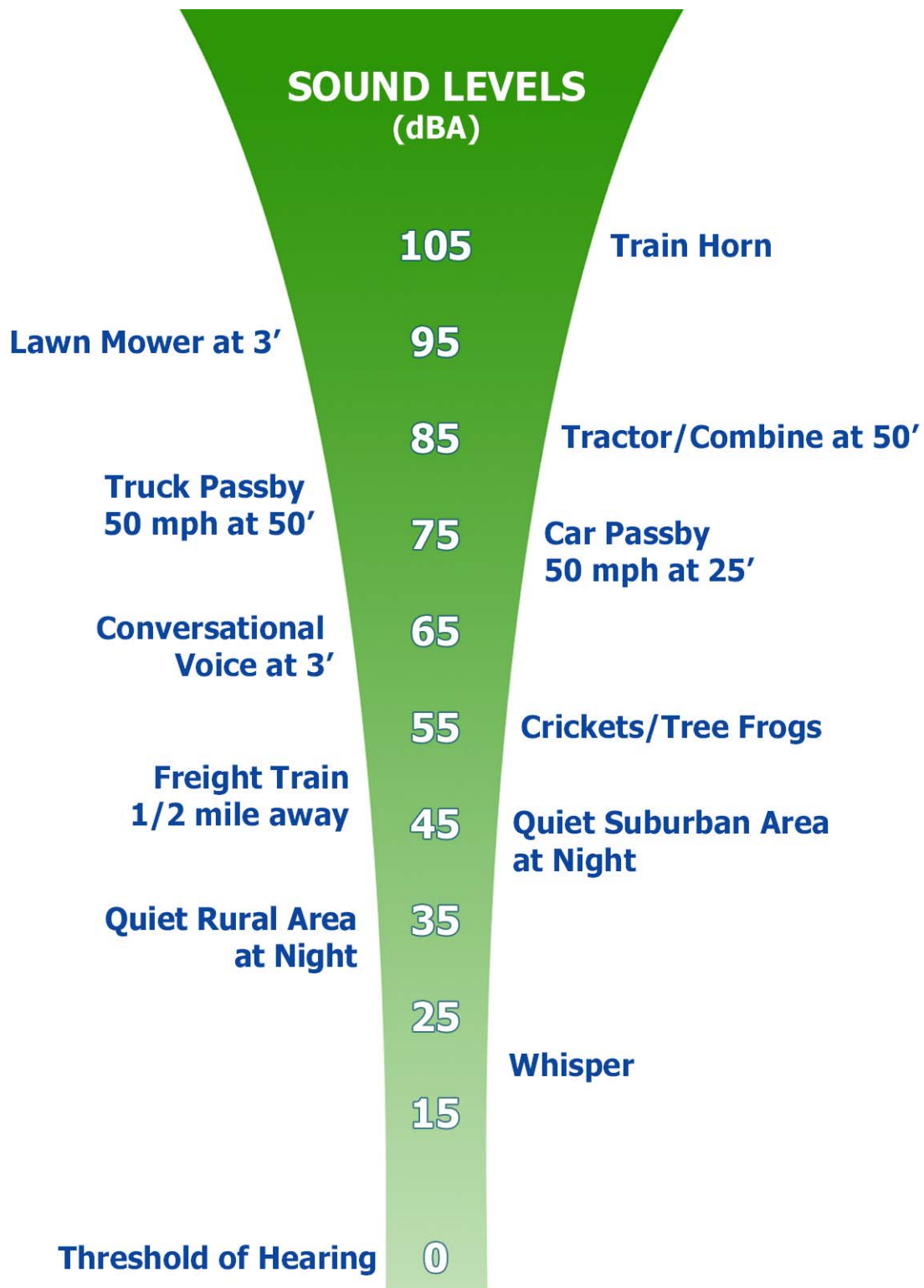


FIGURE 1.
Common Outdoor Sound Levels

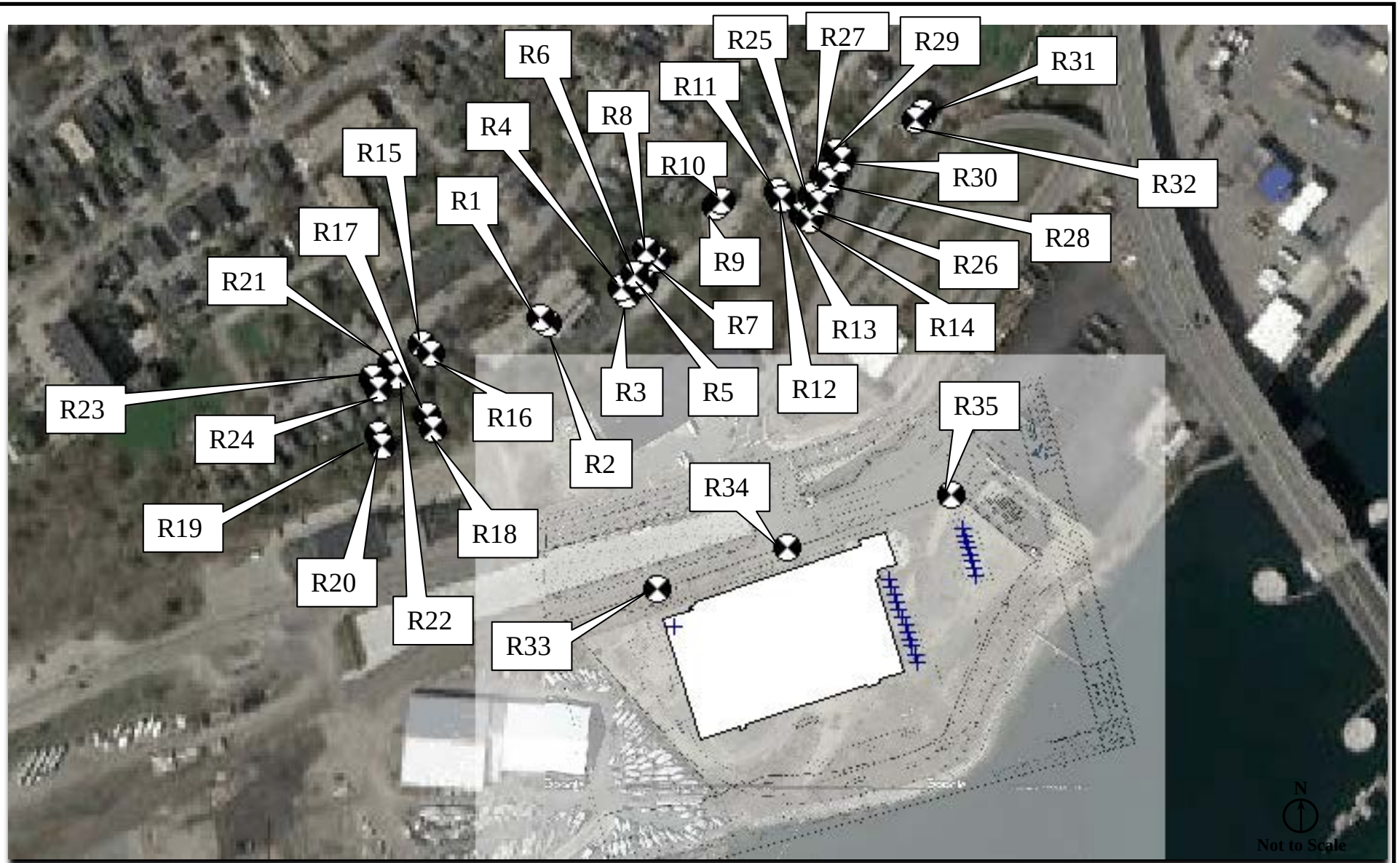


FIGURE 2.
Modeling Receptors Location
40 West Commercial Street, Portland, ME

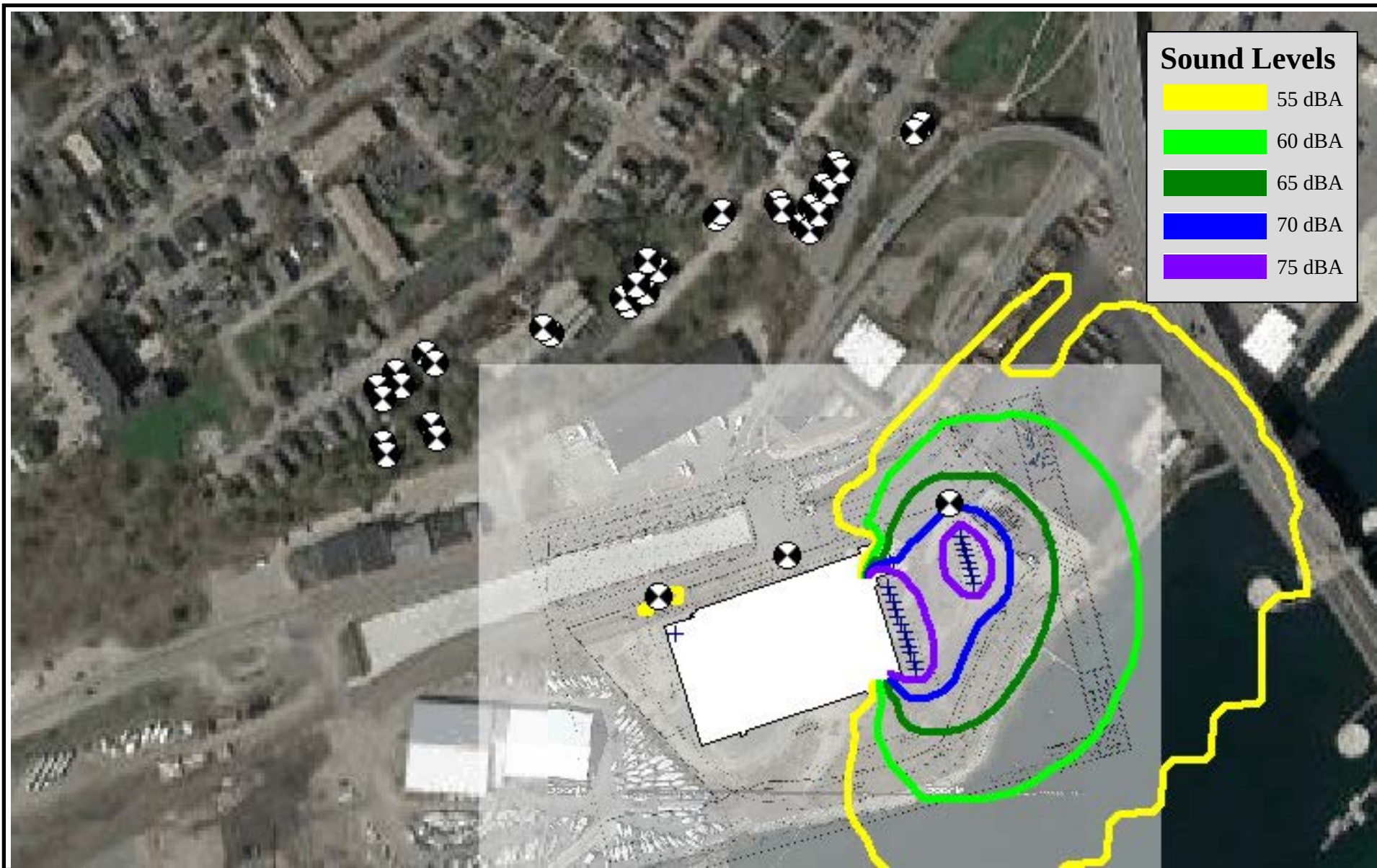


FIGURE 3.
Daytime Predicted Sound Levels
40 West Commercial Street, Portland, ME

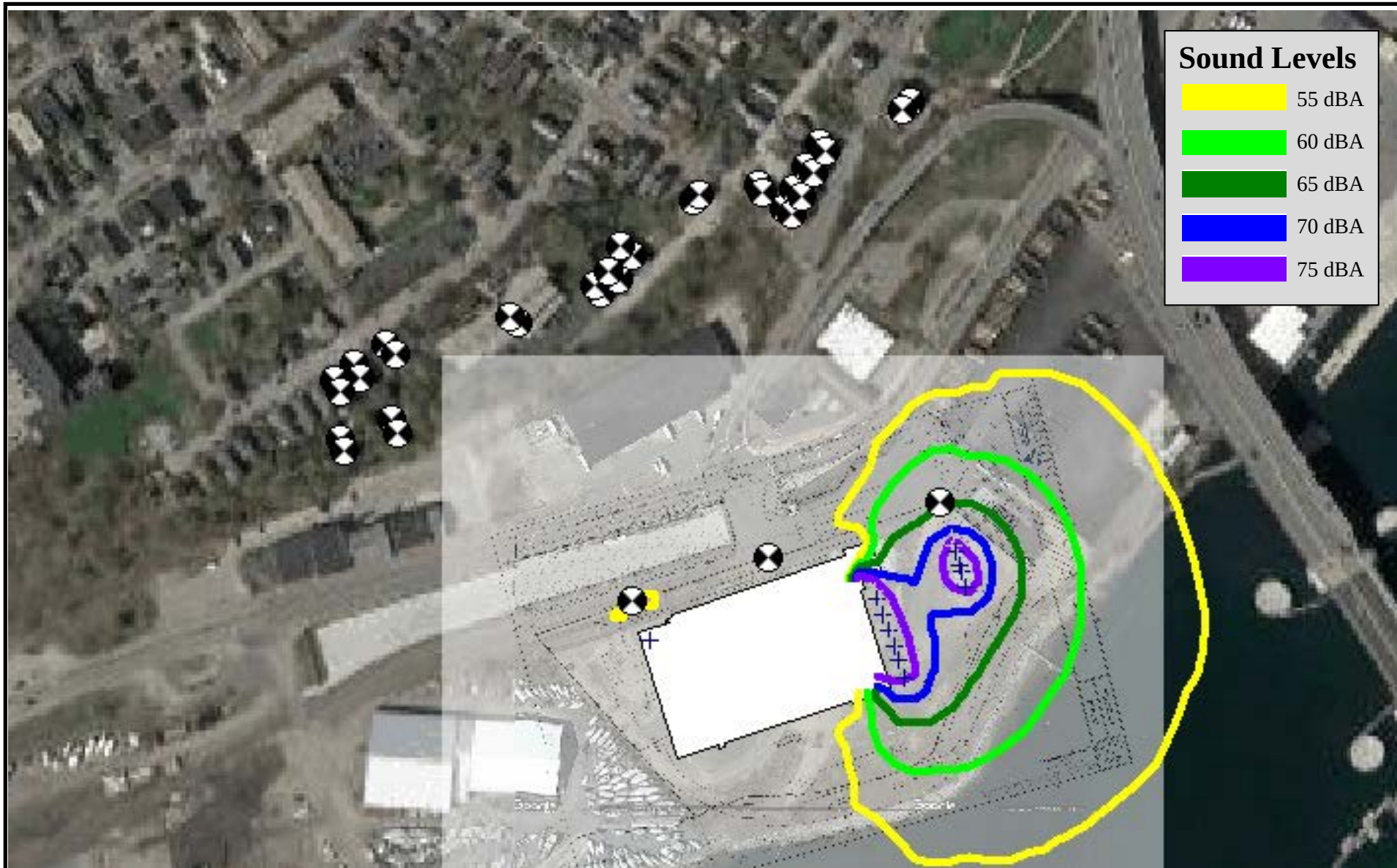


FIGURE 3.
Nighttime Predicted Sound Levels
40 West Commercial Street, Portland, ME

6. VISUAL QUALITY & SCENIC CHARACTER

As further described in the City of Portland Site Plan Application for the proposed development, the architecture and landscaping have been designed to be consistent with the scenic character of the surrounding urban waterfront area. The Site Plan Application includes renderings of the proposed development. It is not anticipated that the proposed development will result in any negative visual impacts.

7. WILDLIFE & FISHERIES

The Site has been previously developed and there are no known areas of significant natural features, including areas of significant wildlife habitats or wetlands. The attached Official Species List identifies the northern long-eared bat, which has been listed as a Federally Threatened Species, in association with the project area; however, there are no critical habitat areas located within the project area. Based on US Fish & Wildlife information, the northern long-eared bat typically lives in caves during the winter months and in trees larger than three inches in diameter during the summer, with migration between these two habitats in the spring in the fall. The project is located in an existing urban, developed area and no trees meeting the criteria for bat habitat are proposed to be impacted by the project. It is not anticipated that the proposed development will have a negative impact on the northern long-eared bat.

A letter has been sent to the Maine Department of Inland Fisheries and Wildlife (MDIFW) requesting information regarding any known threatened or endangered species or critical habitat relative to the project area; a copy of this letter is attached to this Section for your reference. A copy of the MDIFW response can be provided upon receipt.

7.1 LIST OF ATTACHMENTS

- Official Species List; and
- MDIFW Environmental Review Request Letter.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Maine Ecological Services Field Office

P. O. Box A

East Orland, ME 04431

Phone: (207) 469-7300 Fax: (207) 902-1588

<http://www.fws.gov/mainefieldoffice/index.html>



In Reply Refer To:

February 24, 2020

Consultation Code: 05E1ME00-2020-SLI-0741

Event Code: 05E1ME00-2020-E-02460

Project Name: MPA Cold Storage Facility

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies the threatened, endangered, candidate, and proposed species and designated or proposed critical habitat that may occur within the boundary of your proposed project or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC Web site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the Endangered Species Consultation Handbook at: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

This species list also identifies candidate species under review for listing and those species that the Service considers species of concern. Candidate species have no protection under the Act but are included for consideration because they could be listed prior to completion of your project. Species of concern are those taxa whose conservation status is of concern to the Service (i.e., species previously known as Category 2 candidates), but for which further information is needed.

If a proposed project may affect only candidate species or species of concern, you are not required to prepare a Biological Assessment or biological evaluation or to consult with the Service. However, the Service recommends minimizing effects to these species to prevent future conflicts. Therefore, if early evaluation indicates that a project will affect a candidate species or species of concern, you may wish to request technical assistance from this office to identify appropriate minimization measures.

Please be aware that bald and golden eagles are not protected under the Endangered Species Act but are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may require development of an eagle conservation plan: http://www.fws.gov/windenergy/eagle_guidance.html Information on the location of bald eagle nests in Maine can be found on the Maine Field Office Web site: <http://www.fws.gov/mainefieldoffice/Project%20review4.html>

Additionally, wind energy projects should follow the wind energy guidelines: <http://www.fws.gov/windenergy/> for minimizing impacts to migratory birds and bats. Projects may require development of an avian and bat protection plan.

Migratory birds are also a Service trust resource. Under the Migratory Bird Treaty Act, construction activities in grassland, wetland, stream, woodland, and other habitats that would result in the take of migratory birds, eggs, young, or active nests should be avoided. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g.,

cellular, digital television, radio, and emergency broadcast) can be found at:
<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm> and at:
<http://www.towerkill.com>; and at:
<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office

P. O. Box A

East Orland, ME 04431

(207) 469-7300

Project Summary

Consultation Code: 05E1ME00-2020-SLI-0741

Event Code: 05E1ME00-2020-E-02460

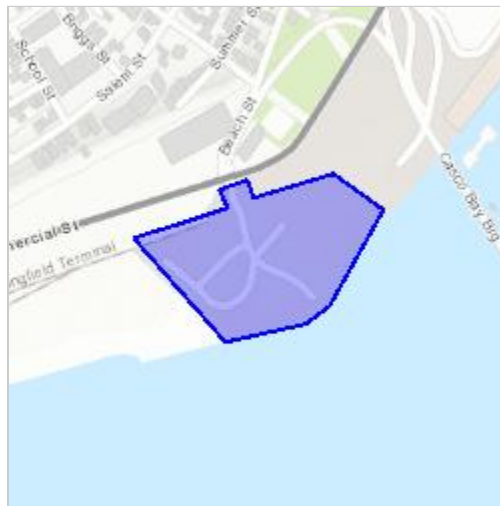
Project Name: MPA Cold Storage Facility

Project Type: DEVELOPMENT

Project Description: Proposed development located at 40 West Commercial Street in Portland, ME.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/43.64488761927891N70.2617886507607W>



Counties: Cumberland, ME

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

February 28, 2020



Maine Department of Inland Fisheries and Wildlife
41 State House Station
Augusta, ME 04333

RE: Maine International Cold Storage Facility – Environmental Review Request

To Whom It May Concern:

Maine Port Authority is proposing to construct a cold storage facility on a 17.9-acre property located at 40 West Commercial Street in Portland, Maine. The project site was previously developed, but is currently vacant, with remnant concrete slabs and pavements, site lights, transformer pads, railroad tracks and gravels. The proposed project will include construction of an approximately 108,000 square foot building with a truck parking and loading area, employee parking lot, emergency access drive and associated site improvements.

The proposed work will require a Maine Department of Environmental Protection Site Location of Development Permit, which requires coordination with the Maine Department of Inland Fisheries and Wildlife (MDIFW). On behalf of Maine Port Authority, we are requesting a review of the project area for any known threatened or endangered species or critical habitat. A Site Location Map and Site Plan have been attached for your reference.

We appreciate your review of this project. If you have any questions regarding this information or the proposed project, please do not hesitate to contact me at (207)558-3662 or dstairs@woodardcurran.com. Thank you for your assistance.

Sincerely,

WOODARD & CURRAN

Darrin Stairs, P.E.
Project Manager

Enclosure(s) Site Location Map
 Site Plan

PN: 0232277.00

8. HISTORIC SITES

A letter has been sent to the Maine Historic Preservation Commission (MHPC) requesting a review of the project area relative to historic properties; a copy of this letter is attached to this Section for your reference. A copy of the MHPC response can be provided upon receipt.

8.1 LIST OF ATTACHMENTS

- MHPC Project Review Request Letter.

February 28, 2020



Kirk F. Mohny, Director
Maine Historic Preservation Commission
55 Capitol Street, 65 State House Station
Augusta, Maine 04333-0065

Re: Maine International Cold Storage Facility – Project Review Request

Dear Mr. Mohny:

Maine Port Authority is proposing to construct a cold storage facility on a 17.9-acre property located at 40 West Commercial Street in Portland, Maine. The project site was previously developed, but is currently vacant, with remnant concrete slabs and pavements, site lights, transformer pads, railroad tracks and gravels. The proposed project will include construction of an approximately 108,000 square foot building with a truck parking and loading area, employee parking lot, emergency access drive and associated site improvements.

The proposed work will require a Maine Department of Environmental Protection Site Location of Development Permit, which requires coordination with the Maine Historic Preservation Commission. On behalf of Maine Port Authority, we are requesting a review of the project area for any known historic properties. The proposed project is not located within or adjacent to a City of Portland Historic Preservation District. A USGS topographic map has been attached for your reference.

We appreciate your review of this project. If you have any questions regarding this information or the proposed project, please do not hesitate to contact me at (207)558-3662 or dstairs@woodardcurran.com. Thank you for your assistance.

Sincerely,

WOODARD & CURRAN

A handwritten signature in black ink, appearing to read "D. Stairs", is written over the company name.

Darrin Stairs, P.E.
Project Manager

Enclosure(s) USGS Map

PN: 0232277.00

9. UNUSUAL NATURAL AREAS

The Site has been previously developed and there are no known unusual natural areas. A letter was sent to the Maine Natural Areas Program (MNAP) requesting a review of the Site relative to rare and exemplary botanical features. A response letter was received from MNAP confirming there are no rare or significant botanical features within the project area; a copy of this letter is attached to this Section.

9.1 LIST OF ATTACHMENTS

- MNAP Site Review Response Letter.



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

March 10, 2020

Darrin Stairs
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Via email: dstairs@woodardcurran.com

Re: Rare and exemplary botanical features in proximity to: #0232277.00, Maine International Cold Storage Facility, Portland, Maine

Dear Mr. Stairs:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received February 28, 2020 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Portland, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. Based on the information in our files and the landscape context of this project, there is a low probability that rare or significant botanical features occur at this project location.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING



PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

A handwritten signature in cursive script, appearing to read "Krist Puryear".

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov

10. BUFFERS

The Site has been previously developed. There are no existing or proposed buffers. This Section is not applicable.

11. SOILS

Copies of the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey and the Geotechnical Report prepared for the Site are attached to this Section for your reference. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP) as described in greater detail in Section 18 of this report. The existing soil management plan will be revised for the site in accordance with the Maine DEP VRAP No Action Assurance Letter (NAAL).

11.1 LIST OF ATTACHMENTS

- United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey; and
- Geotechnical Report.



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

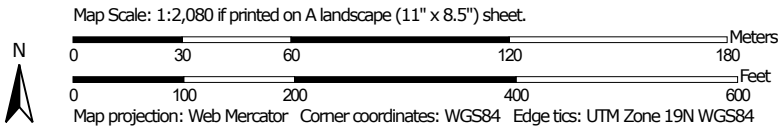
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.



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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 16, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cu	Cut and fill land	12.0	97.9%
W	Water	0.3	2.1%
Totals for Area of Interest		12.2	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

Cu—Cut and fill land

Map Unit Setting

National map unit symbol: blh4
Elevation: 10 to 2,200 feet
Mean annual precipitation: 30 to 55 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 70 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Cut and fill land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cut And Fill Land

Typical profile

H1 - 0 to 65 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 35 percent
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.00 in/hr)
Depth to water table: About 24 to 42 inches
Available water storage in profile: Moderate (about 6.6 inches)

Minor Components

Windsor

Percent of map unit: 2 percent
Landform: Outwash terraces, kames
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Elmwood

Percent of map unit: 2 percent
Landform: Stream terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hollis

Percent of map unit: 2 percent
Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex

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Across-slope shape: Convex

Hydric soil rating: No

Tidal marsh

Percent of map unit: 2 percent

Landform: Tidal flats

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Buxton

Percent of map unit: 2 percent

Landform: Coastal plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Lakes

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Via Electronic Mail

April 30, 2018



Matt Burns
Executive Director
Maine Port Authority
16 State House Station
Augusta, ME 04333-0016

Re: Preliminary Geotechnical Survey and Foundation System Recommendations
Proposed Cold Storage Facility, Portland IMT

Dear Matt:

This letter report describes the work completed by Woodard & Curran to provide information relative to geotechnical conditions at the cold storage development site and how these conditions may impact the type of foundation that is appropriate to support the proposed building.

The following sections describe the work that was completed to evaluate conditions relative to the various engineering disciplines applicable to the project, as well as the resulting recommended preliminary foundation design concept and associated estimated construction cost.

Please note that the information contained in this letter report is based solely on the limited investigation conducted at the project site and basic design details provided by Americold Logistics, LLC (Americold) in their September 9, 2016, Request for Proposal (RFP). Therefore, the findings presented herein must be considered preliminary in nature and are not appropriate for use in construction without verification during the building design phase of the project.

Background

Consistent with our direct experience at the cold storage facility development site, existing geology may present an unacceptable risk of total and differential post-construction building and slab settlement, which could result in slab/foundation failure if a soil-supported foundation system and slab-on-grade is constructed at the site. Conversely, we understand that the premium costs associated with the design and construction of a deep pile-supported foundation system have the potential to impact the financial feasibility of the project as well as the lease terms with the developer. Therefore, Woodard & Curran investigated subsurface conditions at the site to determine the feasibility of supporting the building using a conventional shallow spread footing foundation system, evaluated several alternative foundation systems, and estimated the potential cost premiums of the alternative systems relative to the foundation design provided by Americold in their September 9, 2016, RFP.

Preliminary Geotechnical Investigation

Field Program

Between December 18 and 27, 2017, Woodard & Curran and our project partner, S.W. Cole, completed five test borings at the site and one additional boring that was abandoned due to refusal. Boring locations are presented on the Exploration Location Plan, which is included in **Attachment A**.



The borings encountered up to 20 feet of fill over up to 10 feet of bay mud over native deposits of glaciomarine clay overlying outwash sands. At the borings nearest West Commercial Street (B-1001 and B-1002), the glaciomarine clay was thin to non-existent and the outwash sands started at approximately 24 feet below ground surface (bgs). At the borings in the center of the site (B-1003) and nearest the Fore River (B-1004 and B-1005), the glaciomarine clays were encountered at depths of 24 to 29 feet bgs extended to depths of approximately 69 feet bgs overlying the outwash sands. Each of the five borings was terminated in the outwash sands.

Groundwater was observed at 4 to 8 feet bgs at the time of drilling. Below-grade obstructions, interpreted to represent relic concrete foundations and slabs, were encountered at several boring locations.

Samples collected during the advancement of the soil borings were analyzed by S.W. Cole for gradation and consolidation. In addition, concurrent with the subsurface exploration program, Hager-Richter completed Shear Wave Velocity Testing on three seismic lines over the building footprint.

Conclusions

The subsurface conditions at the site are variable with fill over bay mud over glaciomarine clays over outwash sands. The glaciomarine clay is of varying thickness, stiffness, and compressibility (normally consolidated to slightly overconsolidated). Soil boring logs and results of gradation and consolidation testing are included as **Attachment B**.

Results of the shear wave velocity testing classified the site as Seismic Site Class D per the 2015 International Building Code (IBC). The Shear Wave Velocity Testing report is included as **Attachment C**.

Consistent with conditions observed during drilling and subsequent laboratory testing, and the preliminary building design plus anticipated storage rack loads provided by Americold in their September 9, 2016, RFP, constructing the proposed building on a shallow soil supported foundation would likely trigger an unacceptable degree of differential settlement. In other words, the shallow soil supported foundation proposed in the September 9, 2016, RFP is unlikely to be adequate and may result in damage to the building slab and/or the building itself.

A graphic that models the varying degrees of potential settlement that could be anticipated across a shallow soil supported building using the preliminary design parameters described above is included as **Attachment D**.

Based on these conditions, the shallow soil supported foundation option was found to be infeasible for the development of the site and several alternative design options were generated. These options are discussed below.

Evaluation of Alternative Foundations

Following the completion of the preliminary geotechnical investigation, Woodard & Curran and our project partners S.W. Cole and Becker Structural Engineers evaluated three different design alternative categories:

1. Hybrid of rigid inclusion ground improvement across the entire building footprint with removal of existing fill and replacement with low density lightweight fill material.
2. Rigid inclusion ground improvement (e.g., aggregate piles terminating in outwash sands) across the entire building footprint with spread footings and an on-grade structural floor slab with normal weight fill.



3a. Deep displacement closed end pipe piles terminating in outwash sands with pile caps, grade beams, and a structural floor slab.

3b. Deep end-bearing H-piles terminating at bedrock with pile caps, grade beams, and a structural floor slab.

Following the identification of the foundation alternatives, Woodard & Curran developed budgetary estimates of probable cost for each option. To the greatest extent possible, each budgetary cost estimate was focused to quantify the cost premium associated with the necessary ground improvements above and beyond what could be anticipated to construct the building presented in Americold's September 9, 2016, RFP.

These estimates describe the expected budgetary labor, materials, and general conditions costs for standard construction divisions as informed by preliminary site and grading, geotechnical, and structural designs.

A table that summarizes the engineering and design considerations as well as the estimated cost for each option is presented below. Schematic descriptions of the alternatives are included as **Attachment E** and budgetary cost estimate summaries are included as **Attachment F**.



Table 1: Foundation Alternative Considerations Matrix

Alternative	Structural Considerations	Civil Considerations	Environmental Considerations	Other Considerations	Budgetary Cost Range
1. Hybrid of rigid inclusion and lightweight fill <u>Details:</u> Sketch: Refer to Attachment B, Sheet 1 Costs: Refer to Attachment C, Option 1	Could allow a less robust structural slab and ground improvement density, reducing cost.	Removal of existing fill material would likely increase earthwork costs.	Approximately 33,600 tons of fill material that is likely contaminated would need to be managed and disposed to install the lightweight fill, likely increasing environmental costs.	- Could possibly eliminate sub-slab heating system due to the insulating properties of lightweight fill material, reducing operational costs. - Subsurface obstructions could interfere with the installation of rigid inclusions.	\$8,710,000 to \$10,017,000
2. Rigid inclusion and normal weight fill <u>Details:</u> Sketch: Refer to Attachment B, Sheet 2 Costs: Refer to Attachment C, Option 2	Foundation construction materials would likely be similar in cost to the RFP design; however, labor costs are likely to increase.	Additional earthwork would be required to install the structural slab design, likely increasing earthwork costs.	Approximately 26,700 tons of fill material that is likely contaminated would need to be managed and disposed due to the foundation design, likely increasing environmental costs.	- Installation of rigid inclusions does not appear to create a significant risk of mobilization of contaminants, but additional study would be needed to confirm. - Subsurface obstructions could interfere with the installation of rigid inclusions.	\$6,412,000 to \$7,374,000
3a. Deep displacement pipe piles <u>Details:</u> Sketch: Refer to Attachment B, Sheet 3 Costs: Refer to Attachment C, Option 3a	Foundation construction materials and labor costs would likely increase relative to RFP design.	Additional earthwork would be required to install grade beams and pile caps, likely increasing earthwork costs.	Approximately 3,600 tons of fill material that is likely contaminated would need to be managed and disposed due to the foundation design, likely increasing environmental costs.	- Installation of rigid inclusions does not appear to create a significant risk of mobilization of contaminants, but additional study would be needed to confirm. - Subsurface obstructions could interfere with the installation of pipe piles.	\$6,397,000 to \$7,357,000
3b. Deep end-bearing H-piles <u>Details:</u> Sketch: Refer to Attachment B, Sheet 3 Costs: Refer to Attachment C, Option 3b	Foundation construction materials and labor costs would likely increase relative to RFP design.	Additional earthwork would be required to install grade beams and pile caps, likely increasing earthwork costs.	Approximately 3,600 tons of fill material that is likely contaminated would need to be managed and disposed due to the foundation design.	H-piles would represent the lowest risk of mobilization of contaminants and would also be least likely to experience interference from subsurface obstructions.	\$5,515,000 to \$6,342,000



Recommended Alternative Foundation System Design and Next Steps

Following the completion of our evaluation, Woodard & Curran has identified a deep end-bearing H-pile system terminating at bedrock with pile caps, grade beams, and a structural floor slab as the design alternative that meets the technical requirements of the project and is likely to be the most cost-effective approach to implement. In addition, this design is least likely to result in the mobilization of existing site contamination and is least likely to experience interference from potential subsurface structures. Therefore, this option may offer a lower risk of potential unforeseen conditions that could impact cost and schedule.

Consistent with our findings, this design option would increase the construction cost of the building described in Americold's September 9, 2016, RFP by approximately \$5,515,000 to \$6,342,000.

To continue to move this project towards implementation, we recommend the Maine Port Authority initiate the following next steps:

1. Reengage Americold and share the details of the recommended design approach;
2. Negotiate final land lease terms; and
3. Facilitate financial commitments and the initiation of site development by Americold.

Please contact us if you have any questions and thank you again for the opportunity to continue to support you through the initial stages of this project.

Sincerely,

WOODARD & CURRAN

Jedd Steinglass, L.S.P.
Project Manager

Eric Carlson, C.G., P.E.
Senior Vice President

PN: 229944.02

Attachments:

- Attachment A: Exploration Location Plan
- Attachment B: Soil Boring Logs, Gradation, and Consolidation Results
- Attachment C: Shear Wave Velocity Testing Report
- Attachment D: Graphical Model of Potential Total Settlement
- Attachment E: Foundation Detail Sketches
- Attachment F: Budget Estimate Summaries

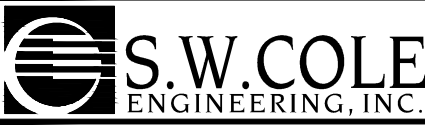
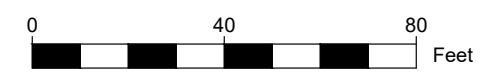


ATTACHMENT A: EXPLORATION LOCATION PLAN



- LEGEND:**
- APPROXIMATE SEISMIC LINE
 - APPROXIMATE BORING LOCATION

- NOTES:**
1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=40' SCALE PLAN OF THE SITE ENTITLED "SITE GRADING CONCEPT," PREPARED BY WOODARD & CURRAN, DATED FEBRUARY 2016.
 2. THE BORINGS WERE LOCATED IN THE FIELD BY MEASUREMENTS FROM EXISTING SITE FEATURES.
 3. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
 4. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.



WOODARD & CURRAN
EXPLORATION LOCATION PLAN
PROPOSED LOW TEMP WAREHOUSE
460 COMMERCIAL STREET
PORTLAND, MAINE

Job No.: 16-1314 Scale: 1" = 40'
Date: 01/05/2018 Sheet: 1

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ATTACHMENT B: SOIL BORING LOGS, GRADATION, AND CONSOLIDATION RESULTS



BORING LOG

BORING NO.: **B-1001**
SHEET: 1 of 1
PROJECT NO. 16-1314
DATE START: 12/20/2017
DATE FINISH: 12/20/2017

CLIENT: Woodard & Curran
PROJECT: Proposed IMT West Cold Storage Facility
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 14' +/- TOTAL DEPTH (FT): 25.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 300 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): 4 ft 12/20/2017 Free water at 4'
GENERAL NOTES: Backfilled borehole with bentonite and drill cuttings.

KEY TO NOTES AND SYMBOLS: Water Level
▽ At time of Drilling D = Split Spoon Sample Pen. = Penetration Length
▽ At Completion of Drilling U = Thin Walled Tube Sample Rec. = Recovery Length
▽ After Drilling R = Rock Core Sample bpf = Blows per Foot
V = Field Vane Shear V = Field Vane Shear mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10	5		1D	X	0.5-2.5	24/18	13-9-7-8		Medium dense, brown silty gravelly SAND (FILL)		
				X				2.0	Medium dense to loose, black gravel, some silt, some sand with wood (FILL) -petroleum odor	▽	
5			2D	X	5-7	24/12	5-4-6-4				
	10		3D	X	10-12	24/12	4-3-4-3		-petroleum odor and sheen below 10'		
0	15		4D	X	15-17	24/10	3-3-4-3		FILL and coal tar		
-5	20		5D	X	20-21.8	21/5	8-7-6-50/3"				
-10	25							21.5	Concrete		
								22.0	Coal tar in casing prevented further drilling		
								25.0	Bottom of Exploration at 25.0 feet Abandoned hole at 25', excessive coal tar		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1001**



BORING LOG

BORING NO.: **B-1001A**

SHEET: 1 of 2

PROJECT NO. 16-1314

DATE START: 12/20/2017

DATE FINISH: 12/20/2017

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 14' +/- TOTAL DEPTH (FT): 52.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 300 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): ∇ 5 ft 12/20/2017 Soils saturated below 5'
GENERAL NOTES: Moved boring 25' +/- west of B-1001. Backfilled borehole with bentonite and drill cuttings.

KEY TO NOTES AND SYMBOLS: ∇ Water Level ∇ At time of Drilling ∇ At Completion of Drilling ∇ After Drilling
D = Split Spoon Sample U = Thin Walled Tube Sample R = Rock Core Sample V = Field Vane Shear
Pen. = Penetration Length Rec. = Recovery Length bpf = Blows per Foot mpf = Minute per Foot
WOR = Weight of Rods WOH = Weight of Hammer RQD = Rock Quality Designation PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft. q_u = Unconfined Compressive Strength, kips/sq.ft. N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10	5								Brown-black gravelly silty SAND with brick (FILL)	∇	
5	10										
0	15		1D	X	15-17	24/12	9-6-4-7		-petroleum odor and sheen		
-5	20		2D	X	20-22	24/22	WOH FOR 12"-2-3 w =31.2 % O =2.0%		19.0 Very loose to loose, gray SAND and silt, some clay with shells (Bay Mud)		
-10	25		3D	X	25-27	24/20	2-4-3-3		24.0 Loose to medium dense, gray SAND and silt with frequent silty clay layers		
-15	30		4D	X	30-32	24/18	3-5-5-6 w =24.5 %				
-20	35		5D	X	35-37	24/2	4-3-10-9				
-25											

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1001A**



BORING LOG

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1001A**

SHEET: 2 of 2

PROJECT NO. 16-1314

DATE START: 12/20/2017

DATE FINISH: 12/20/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
			6D	X	40-42	24/24	4-3-4-6		Loose to medium dense, gray silty SAND with clay layers		
-30	45		7D	X	45-47	24/24	WOH FOR 12"-5-5				
-35	50		8D	X	50-52	24/18	7-11- 11-12		49.0 Medium dense, brown silty SAND with clay layers		
									52.0 Bottom of Exploration at 52.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1001A**



BORING LOG

BORING NO.: **B-1002**
SHEET: 1 of 2
PROJECT NO. 16-1314
DATE START: 12/27/2017
DATE FINISH: 12/27/2017

CLIENT: Woodard & Curran
PROJECT: Proposed IMT West Cold Storage Facility
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 12' +/- TOTAL DEPTH (FT): 52.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted Diedrich D-50 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 300 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.79 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): ∇ 7 ft 12/27/2017 Soils saturated below 7'

GENERAL NOTES: Backfilled borehole with bentonite to 16' below ground surface.

KEY TO NOTES AND SYMBOLS: Water Level
 ∇ At time of Drilling D = Split Spoon Sample Pen. = Penetration Length WOR = Weight of Rods
 ∇ At Completion of Drilling U = Thin Walled Tube Sample Rec. = Recovery Length WOH = Weight of Hammer
 ∇ After Drilling R = Rock Core Sample bpf = Blows per Foot RQD = Rock Quality Designation q_u = Unconfined Compressive Strength, kips/sq.ft.
V = Field Vane Shear mpf = Minute per Foot PID = Photoionization Detector N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10			1D	X	3-5	24/126	4-4-3-2		Concrete		
5			2D	X	5-7	24/15	4-4-4-4		1.1 Loose, brown silty SAND (FILL)		
5									6.5 Loose, black silty SAND (FILL) -petroleum odor	∇	
10			3D	X	10-12	24/14	4-7-9-6		9.0 Medium dense, gray gravelly SAND, some silt -petroleum odor		
0									14.0 Very loose, gray silty SAND with organics -petroleum odor and sheen		
15			4D	X	15-17	24/11	4-1-1-1	w =28.8 % O =1.9%	19.0 Medium dense, gray silty gravelly SAND		
-5									24.0 Medium dense to loose, light brown silty SAND with silty clay layers		
20			5D	X	20-22	24/14	2-5-7-13				
-10											
25			6D	X	25-27	24/14	3-3-9-7	w =25 %			
-15											
30			7D	X	30-32	24/12	4-8-8-7				
-20											
35			8D	X	35-37	24/20	5-4-6-6	w =22.4 %			
-25											

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1002**



BORING LOG

CLIENT: Woodard & Curran
 PROJECT: Proposed IMT West Cold Storage Facility
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1002**
 SHEET: 2 of 2
 PROJECT NO. 16-1314
 DATE START: 12/27/2017
 DATE FINISH: 12/27/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
-30	45		9D	X	40-42	24/18	6-4-2-5		40.0 Loose, gray silty SAND, some gravel with silty clay layers		
-35									45.0 Medium dense, gray SAND and silt		
-50			10D	X	50-52	24/14	4-8-18-19	w =23.1 %			
-40									52.0 Bottom of Exploration at 52.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1002**



BORING LOG

BORING NO.: **B-1003**
SHEET: 1 of 2
PROJECT NO. 16-1314
DATE START: 12/21/2017
DATE FINISH: 12/21/2017

CLIENT: Woodard & Curran
PROJECT: Proposed IMT West Cold Storage Facility
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 12' +/- TOTAL DEPTH (FT): 82.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 300 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): 4.5 ft 12/21/2017 Free water at 4.5'

GENERAL NOTES: Moved borehole 8-10' west after drilling through concrete at 4-5' and void from 5-10'. Backfilled borehole with bentonite to 16' below ground surface.

KEY TO NOTES AND SYMBOLS: Water Level
At time of Drilling
At Completion of Drilling
After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10									Medium dense, black-brown silty gravelly SAND with brick (FILL) -Petroleum odor at 5-7'		
5			1D		5-7	24/19	5-12-8-3				
5											
10			2D		10-11.5	18/7	1-1-1-25/0"		Very loose		
0									11.5 Concrete		
15			3D		15-17	24/13	6-12-12-16		13.0 Medium dense, black sandy SILT with ash (FILL) -Petroleum odor and sheen		
-5											
20			4D		20-22	24/9	6-6-4-3		19.0 Medium dense to loose, gray-brown silty SAND with wood		
-10								w = 22.6 % O = 1.7%			
25			5D		25-27	24/15	WOH-1-1-1		Very loose, gray sandy SILT with shells and organics (Bay Mud)		
-15								w = 39.7 % O = 2.8%			
30			6D		30-32	24/24	WOH FOR 24"		29.0 Medium to stiff, gray silty CLAY with shells and organics to 32'		
-20											
35			1U		35-37	24/24					
-25			1V 1V'		37-37.5 37.5-38	6 6		W _L =55 W _P =30 S _v =1.55/0.31ksf S _v =1.61/0.31ksf			

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1003**



BORING LOG

CLIENT: Woodard & Curran
 PROJECT: Proposed IMT West Cold Storage Facility
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1003**
 SHEET: 2 of 2
 PROJECT NO. 16-1314
 DATE START: 12/21/2017
 DATE FINISH: 12/21/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
-30									Medium to stiff, gray silty CLAY		
45			2U		45-47	24/24					
-35			2V		47-47.5	6			W _L =55 W _P =27 S _v =1.92/0.43ksf S _v =2.11/0.62ksf		
			2V'		47.5-48	6					
50											
-40											
55			3U		55-57	24/24					
-45			3V		57-57.5	6			W _L =48 W _P =25 S _v =1.61/0.43ksf S _v =1.92/0.43ksf		
			3V'		57.5-58	6					
60			7D		60-62	24/24	WOH- WOH FOR 12"-2		59.0 Very loose, gray SAND and silt with shells and wood		
-50											
65			8D		65-67	24/24	1-1-2-2	w =23.6 %			
-55											
70			9D		70-72	24/19	7-16- 21-22	w =16.5 %	69.0 Dense, gray fine to medium SAND, some gravel, some silt		
-60											
75											
-65											
80			10D		80-82	24/21	8-18- 20-29	w =20.6 %	79.0 Dense, gray silty fine to medium SAND		
-70									82.0 Bottom of Exploration at 82.0 feet		

BORING / WELL 16-1314.GPJ SWCE TEMPLATE.GDT 1/29/18

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1003**



BORING LOG

BORING NO.: **B-1004**
SHEET: 1 of 2
PROJECT NO. 16-1314
DATE START: 12/18/2017
DATE FINISH: 12/18/2017

CLIENT: Woodard & Curran
PROJECT: Proposed IMT West Cold Storage Facility
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 10' +/- TOTAL DEPTH (FT): 82.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 140 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): 8 ft 12/18/2017 Soils wet 5-7' and saturated below 8'.
GENERAL NOTES: Backfilled borehole with bentonite to 22' below ground surface.

KEY TO NOTES AND SYMBOLS: Water Level
▽ At time of Drilling
▽ At Completion of Drilling
▽ After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
			1D	×	0-2	24/16	5-5-6-6		Medium dense, brown-gray-black silty gravelly SAND (FILL)		
5	5		2D	×	5-7	24/8	4-1-1-1		5.5 Very loose, gray SAND and silt, some clay with shells (FILL) -naphthalene odor	▽	
0	10		3D	×	10-12	24/10	5-3-6-6		8.0 Loose, brown-black silty SAND and gravel (FILL) -petroleum sheen and naphthalene odor		
-5	15		4D	×	15-17	24/12	2-3-2-2				
-10	20		5D	×	20-22	24/13	1-2-1-1	w=31 % O=1.8%	19.0 Very loose, gray SILT and sand, trace gravel with shells, organics (Bay Mud)		
-15	25		6D	×	25-27	24/24	WOH FOR 24"	w=48.3 % O=2.9%	24.0 Medium to stiff, gray silty CLAY with sand layers/seams		
-20	30		1U	■	30-32	24/12		W _L =47 W _P =28 w=53.4 % S _v =1.05/0.27ksf S _v =1.09+ksf			
			1V	■	32-32.7	8					
			1V	■	32.7- 33.4	8					
-25	35										

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1004**



BORING NO.: B-1004

SHEET: 2 of 2

PROJECT NO. 16-1314

DATE START: 12/18/2017

DATE FINISH: 12/18/2017

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

16-1314.GPJ SWCE TEMPLATE.GDT 1/29/18

BORING NO.: B-1004



BORING LOG

CLIENT: Woodard & Curran
PROJECT: Proposed IMT West Cold Storage Facility
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-1005
SHEET: 1 of 2
PROJECT NO. 16-1314
DATE START: 12/19/2017
DATE FINISH: 12/19/2017

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 11' +/- TOTAL DEPTH (FT): 82.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 140 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): 8 ft 12/19/2017 Soils saturated below 8'

GENERAL NOTES: Backfilled borehole with bentonite to 19' below ground surface.

KEY TO NOTES AND SYMBOLS: Water Level
▽ At time of Drilling
▽ At Completion of Drilling
▽ After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10			1D		0-2	24/16	3-6-11-18		Medium dense to very loose, brown-black silty gravelly SAND with brick (FILL) -petroleum odor and sheen below-		
5			2D		5-7	24/18	13-15-6-8				
0			3D		10-12	24/18	1-2-1-2				
-5			4D		15-17	24/7	2-1-1-3				
-10			5D		20-22	24/16	4-6-5-6	w =25.5 % O =1.2%			
-15			6D		25-27	24/1	6-4-2-2		Cobble at 24'		
-20			7D		30-32	24/5	1-1-2-3	w =38.9 % O =2.0%			
-25			1U		35-37	24/24		W _L =49 W _p =26 w =46.5 % S _v =2.05/0.31ksf S _v =1.86/0.31ksf			
			1V		37-37.5	6					
			1V		37.5-38	6					

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: B-1005



BORING LOG

CLIENT: Woodard & Curran
 PROJECT: Proposed IMT West Cold Storage Facility
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1005**
 SHEET: 2 of 2
 PROJECT NO. 16-1314
 DATE START: 12/19/2017
 DATE FINISH: 12/19/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
-30									Medium to stiff, gray silty CLAY with sand layers/seams		
-35	45		2U		45-47	24/22					
			2V		47-47.5	6					
			2V'		47.5-48	6			W _L =54 W _P =29 w=51.1 % S _v =2.17/0.43ksf S _v =2.17/0.62ksf		
-40	50										
-45	55		3U		55-57	24/21					
			3V		57-57.5	6			W _L =43 W _P =24 w=41.2 % S _v =2.05/0.56ksf S _v =2.17/0.50ksf		
			3V'		57.5-58	6					
-50	60		8D		60-62	24/18	4-3-4-5		w=23 %	59.0	Loose to medium dense, gray silty fine to coarse SAND with wood and pinecones
-55	65		9D		65-67	24/16	6-7-11-15				
-60	70		10D		70-72	24/10	5-5-5-2		w=21.1 %	69.0	Loose to medium dense, gray SAND, some silt, some gravel
-65	75									75.0	Medium dense, gray silty SAND
-70	80		11D		80-82	24/18	2-5-11-13		w=21 %		
										82.0	Bottom of Exploration at 82.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1005**

KEY TO NOTES & SYMBOLS

Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q _u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S _v	-	field vane shear strength, kips/sq. ft.
L _v	-	lab vane shear strength, kips/sq. ft.
q _p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W _L	-	liquid limit - Atterberg test
W _P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ _T	-	total soil weight
γ _B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%
With	Undifferentiated

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to 1/2" thickness
Layer:	1/2" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: Test Boring Explorations - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: Test Pit Explorations - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Material Source **B-1001A 4D 30-32**

Project Number 16-1314

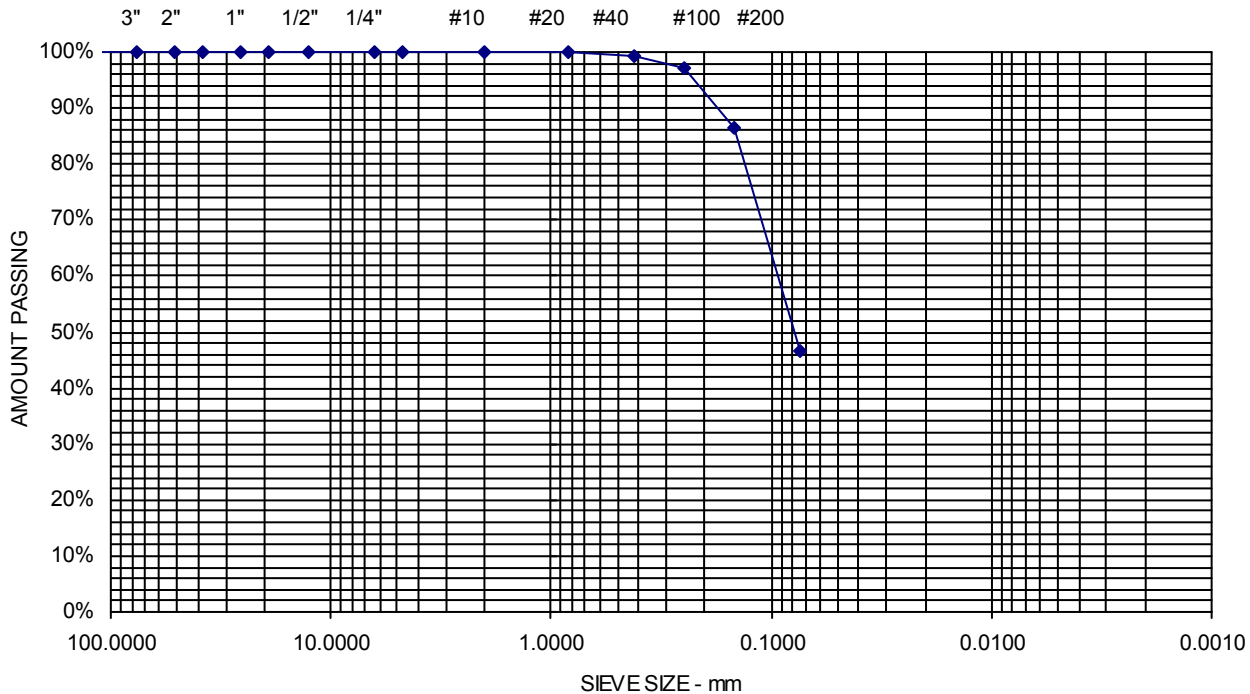
Lab ID 23279G

Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	99	53.3% Sand
250 μm	No. 60	97	
150 μm	No. 100	86	
75 μm	No. 200	46.7	46.7% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23280G

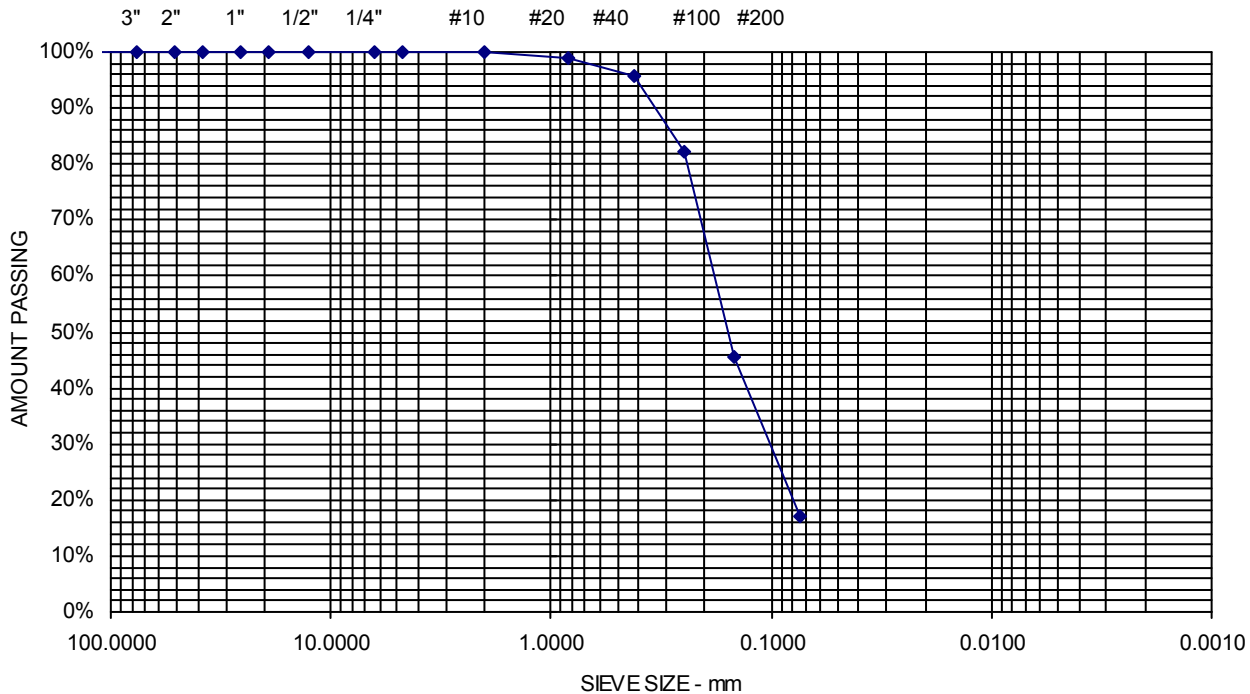
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

Material Source **B-1001A 6D 40-42**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	99	
425 μm	No. 40	96	82.8% Sand
250 μm	No. 60	82	
150 μm	No. 100	46	
75 μm	No. 200	17.2	17.2% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23281G

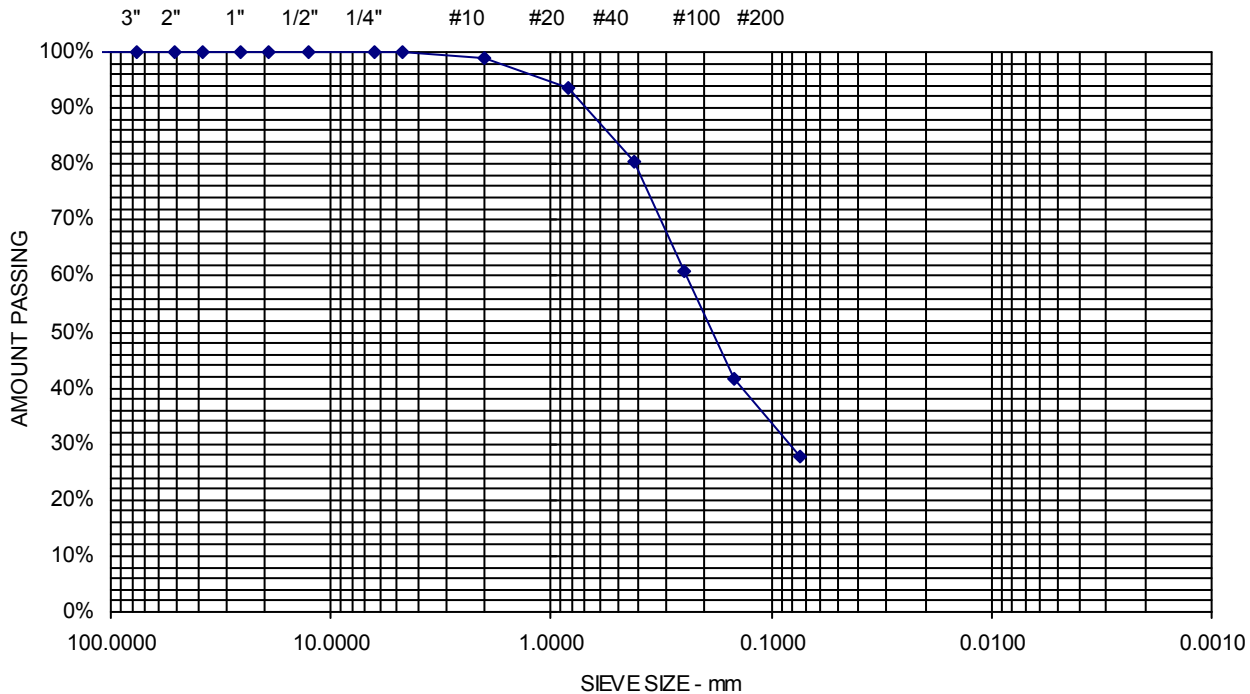
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

Material Source **B-1001A 8D 50-52**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	99	
850 μm	No. 20	93	
425 μm	No. 40	80	72.4% Sand
250 μm	No. 60	61	
150 μm	No. 100	42	
75 μm	No. 200	27.6	27.6% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23283G

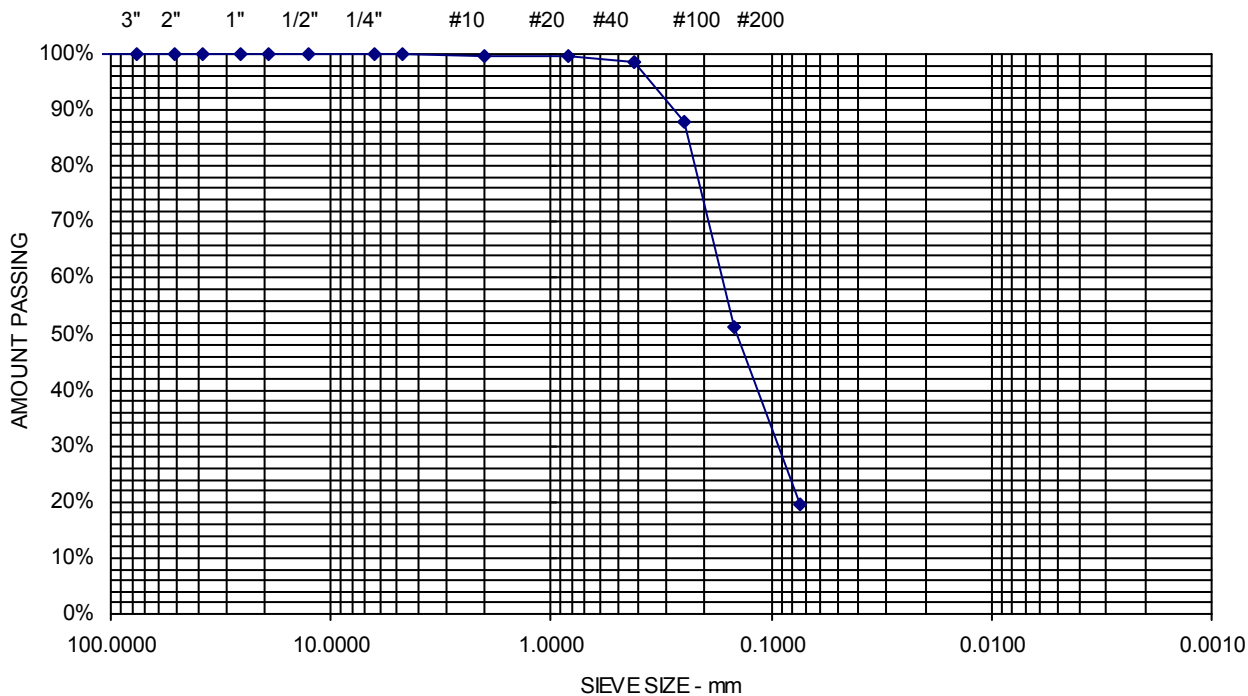
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

Material Source **B-1002 6D 25-27**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	98	80.3% Sand
250 μm	No. 60	88	
150 μm	No. 100	51	
75 μm	No. 200	19.7	19.7% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23284G

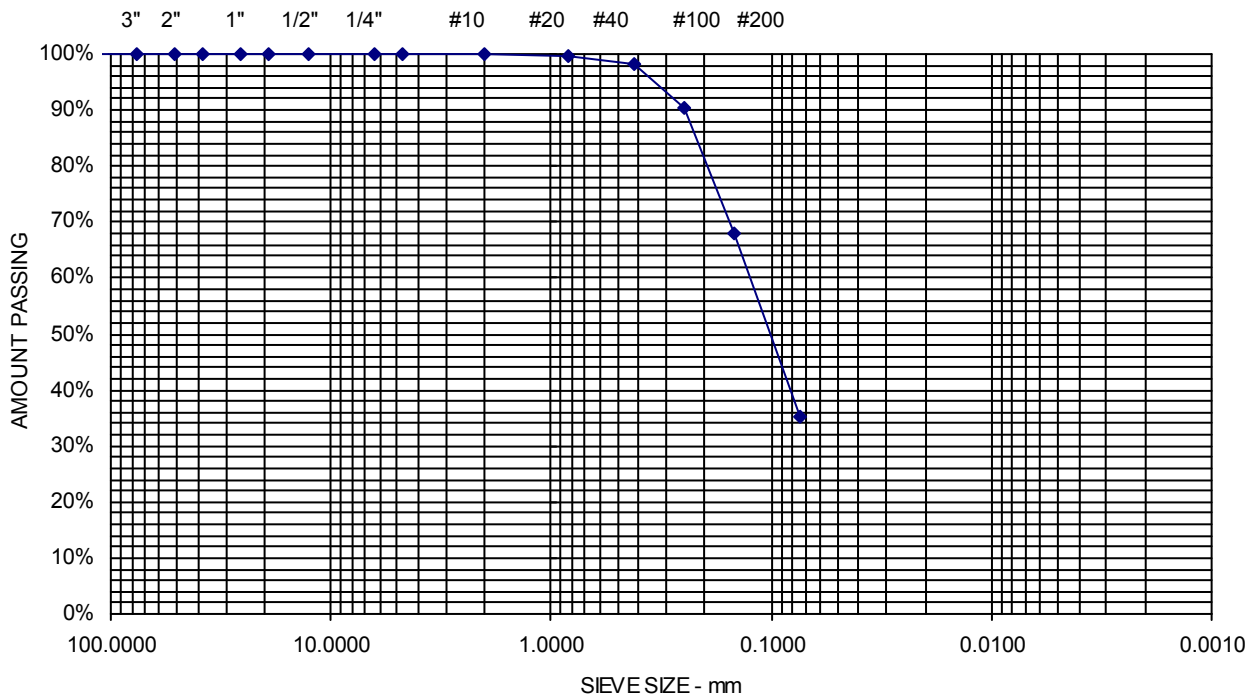
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

 Material Source **B-1002 8D 35-37**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	98	64.6% Sand
250 μm	No. 60	90	
150 μm	No. 100	68	
75 μm	No. 200	35.4	35.4% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23285G

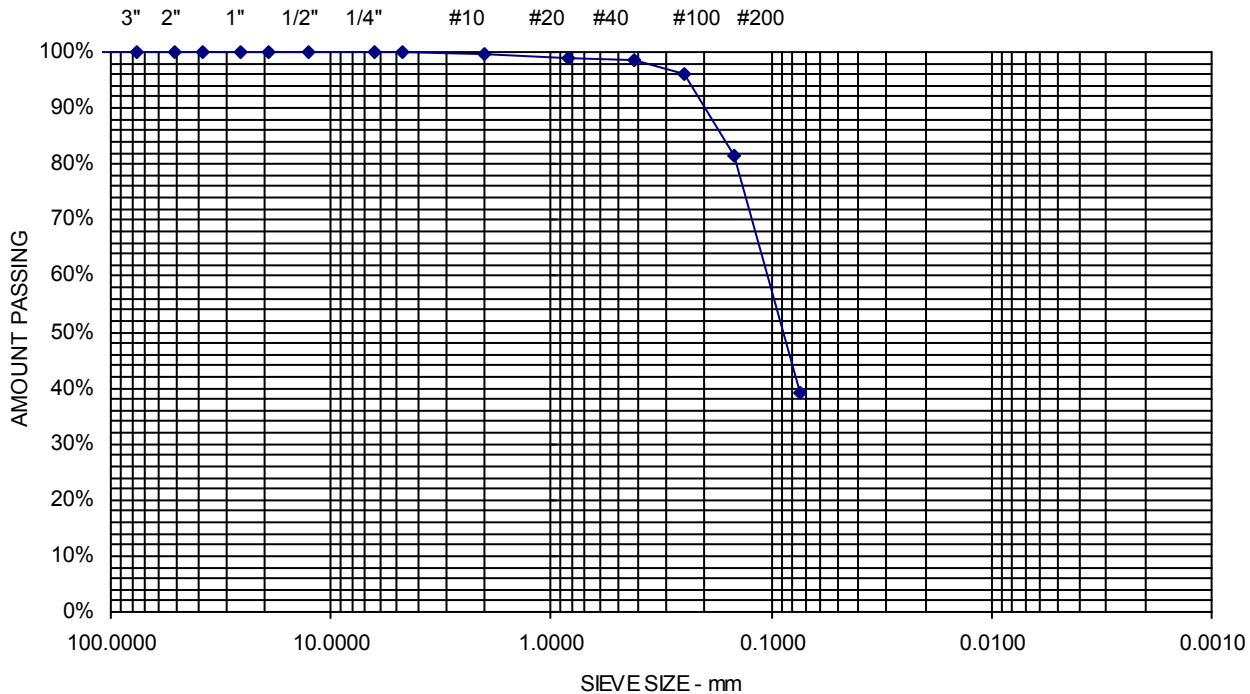
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

 Material Source **B-1002 10D 50-52**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	99	
425 μm	No. 40	98	60.9% Sand
250 μm	No. 60	96	
150 μm	No. 100	82	
75 μm	No. 200	39.1	39.1% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

 Material Source **B-1003 8D 65-67**

Project Number 16-1314

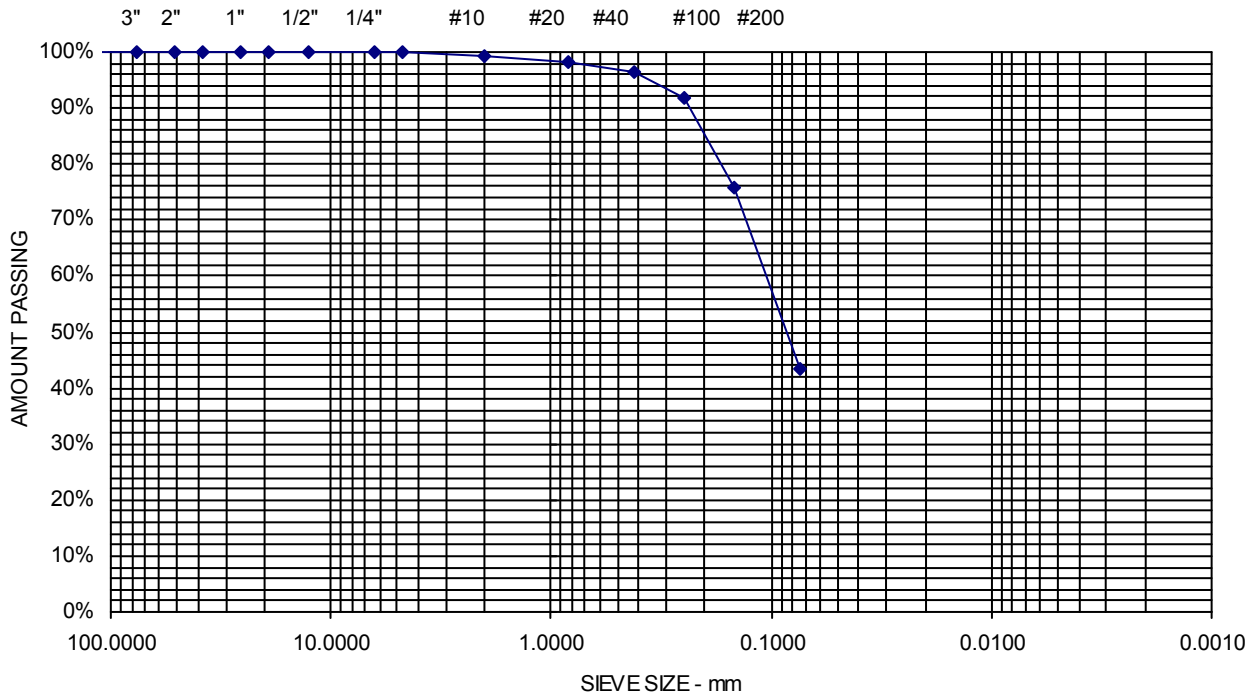
Lab ID 23288G

Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	99	
850 μm	No. 20	98	
425 μm	No. 40	96	56.5% Sand
250 μm	No. 60	92	
150 μm	No. 100	76	
75 μm	No. 200	43.5	43.5% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23289G

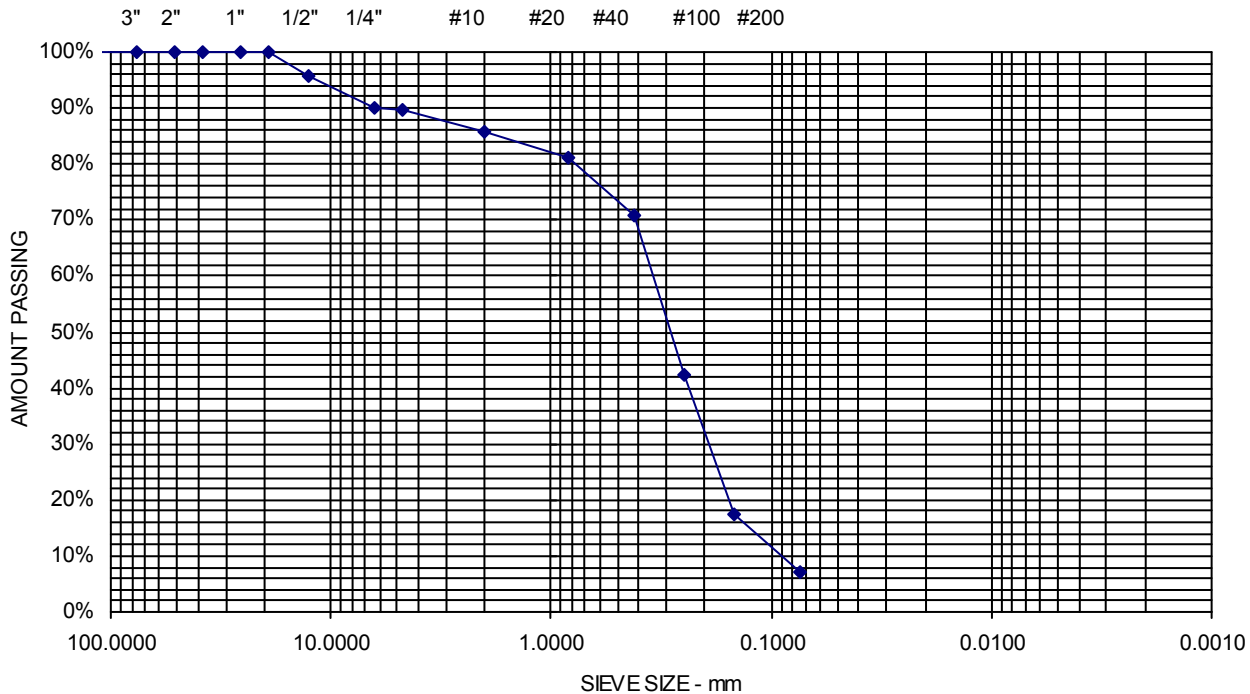
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

 Material Source **B-1003 9D 70-72**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	96	
6.3 mm	1/4"	90	
4.75 mm	No. 4	90	10.3% Gravel
2.00 mm	No. 10	86	
850 μm	No. 20	81	
425 μm	No. 40	71	82.7% Sand
250 μm	No. 60	42	
150 μm	No. 100	17	
75 μm	No. 200	7.0	7% Fines

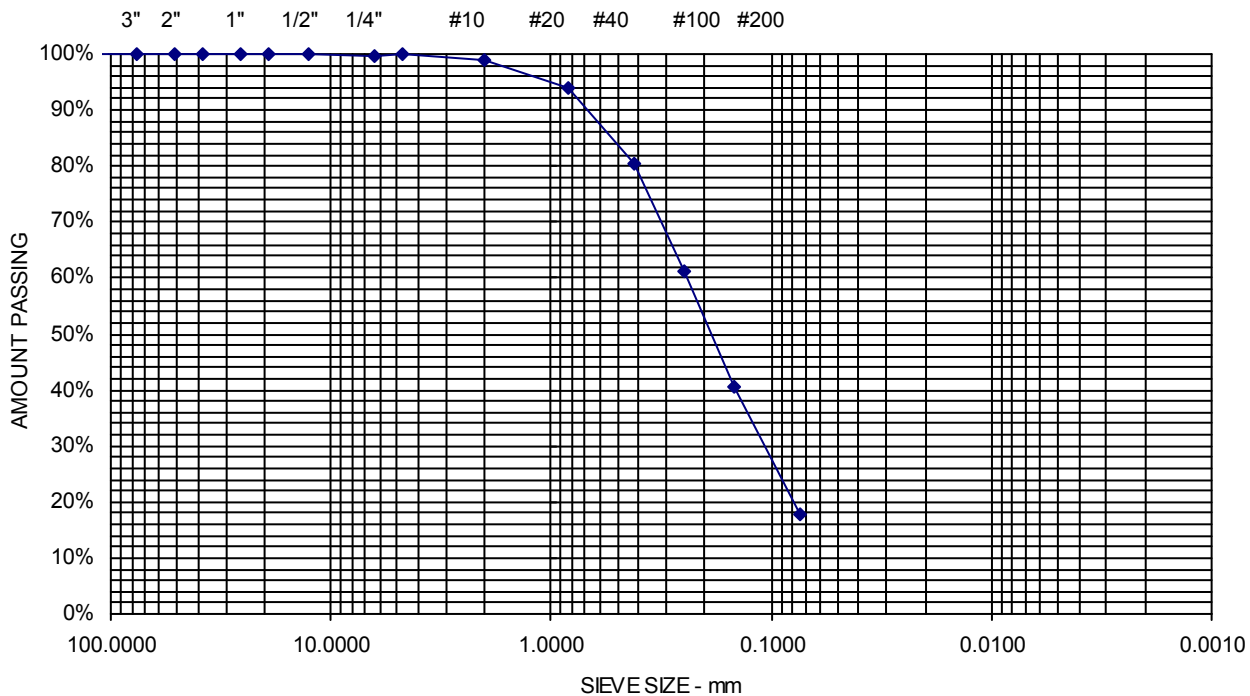


Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES
Client WOODARD & CURRAN, INC.

Project Number 16-1314
Lab ID 23290G
Date Received 12/29/2017
Date Completed 1/3/2018
Tested By PAUL SHAFFER

Material Source **B-1003 10D 80-82**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	99	
850 μm	No. 20	94	
425 μm	No. 40	81	82.2% Sand
250 μm	No. 60	61	
150 μm	No. 100	40	
75 μm	No. 200	17.8	17.8% Fines

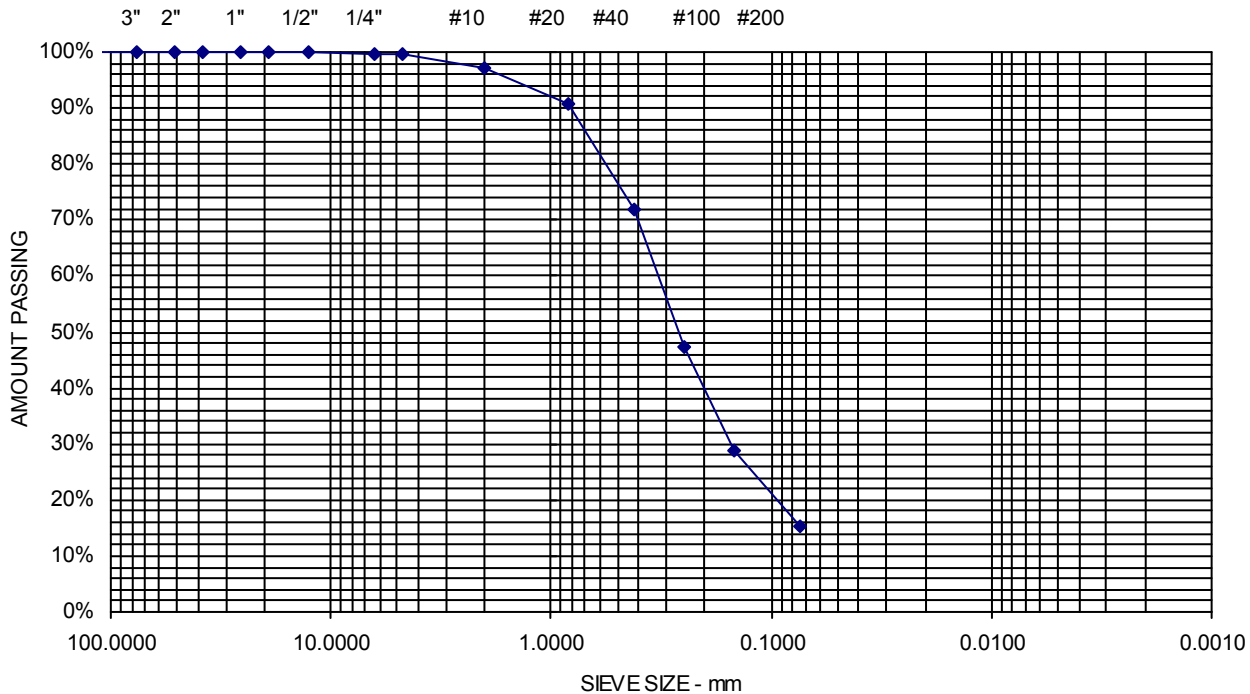


Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES
Client WOODARD & CURRAN, INC.

Project Number 16-1314
Lab ID 23293G
Date Received 12/29/2017
Date Completed 1/3/2018
Tested By PAUL SHAFFER

Material Source **B-1004 7D 60-62**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0.5% Gravel
2.00 mm	No. 10	97	
850 μm	No. 20	91	
425 μm	No. 40	72	84.2% Sand
250 μm	No. 60	47	
150 μm	No. 100	29	
75 μm	No. 200	15.4	15.4% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23294G

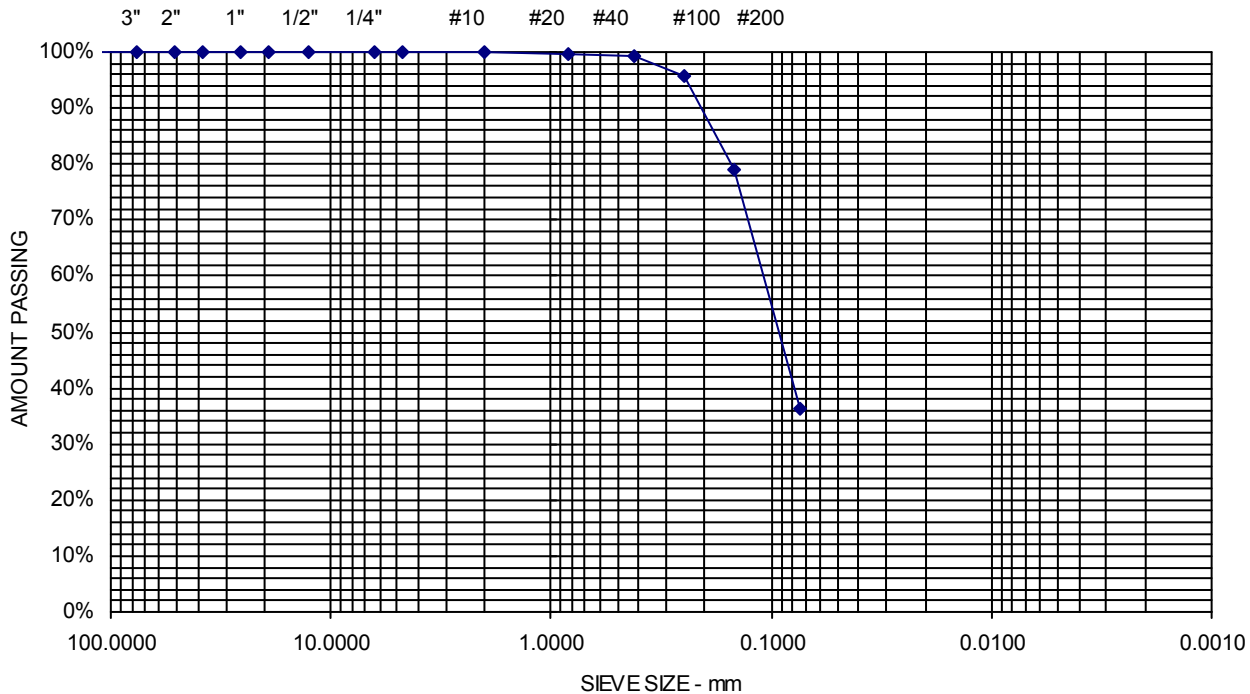
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

 Material Source **B-1004 9D 70-72**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	99	63.8% Sand
250 μm	No. 60	96	
150 μm	No. 100	79	
75 μm	No. 200	36.2	36.2% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23295G

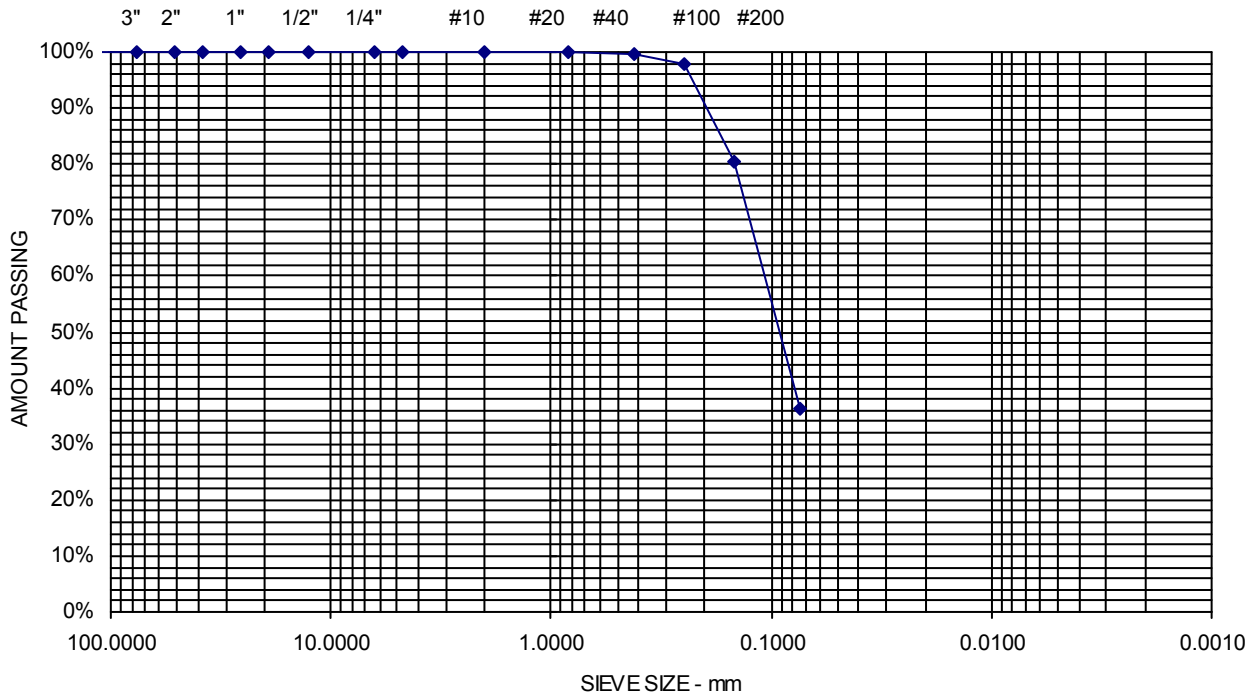
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

 Material Source **B-1004 10D 80-82**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	100	63.6% Sand
250 μm	No. 60	98	
150 μm	No. 100	80	
75 μm	No. 200	36.4	36.4% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
 GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23298G

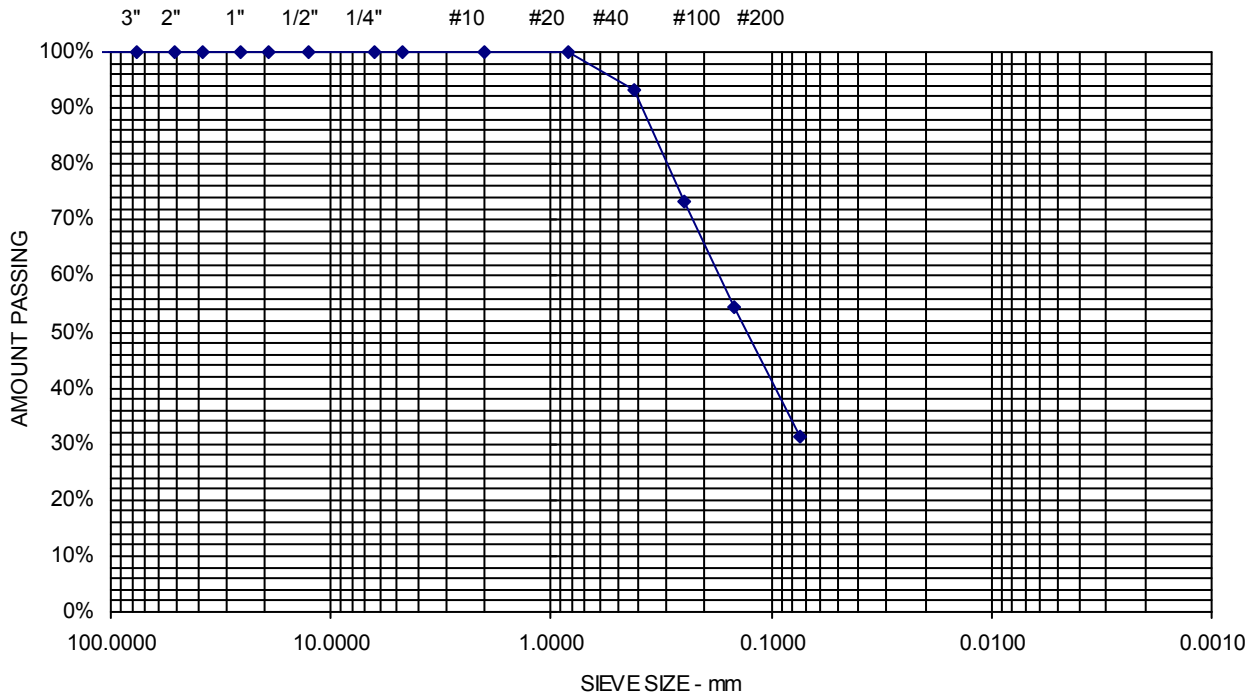
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

 Material Source **B-1005 8D 60-62**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	100	
850 μm	No. 20	100	
425 μm	No. 40	93	68.6% Sand
250 μm	No. 60	73	
150 μm	No. 100	55	
75 μm	No. 200	31.4	31.4% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Material Source **B-1005 10D 70-72**

Project Number 16-1314

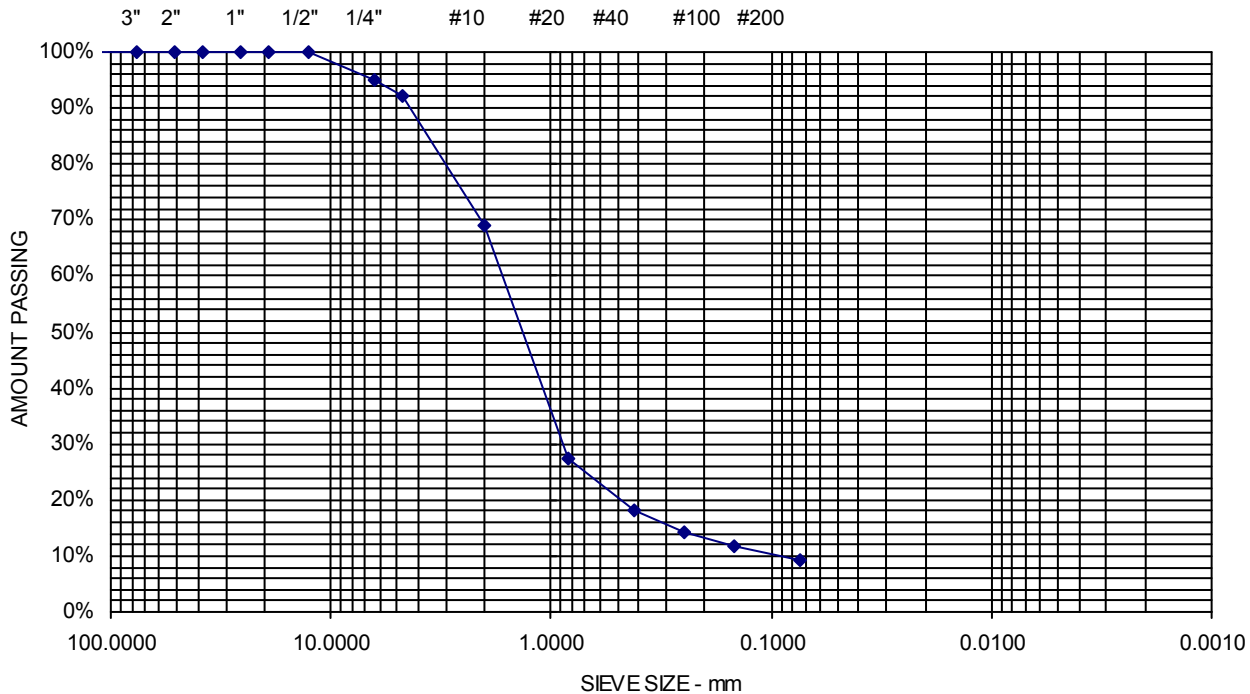
Lab ID 23299G

Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	95	
4.75 mm	No. 4	92	8% Gravel
2.00 mm	No. 10	69	
850 μm	No. 20	27	
425 μm	No. 40	18	82.8% Sand
250 μm	No. 60	14	
150 μm	No. 100	12	
75 μm	No. 200	9.2	9.2% Fines



Project Name PORTLAND ME - PROPOSED IMT COLD STORAGE WAREHOUSE -
GEOTECHNICAL ENGINEERING SERVICES

Client WOODARD & CURRAN, INC.

Project Number 16-1314

Lab ID 23300G

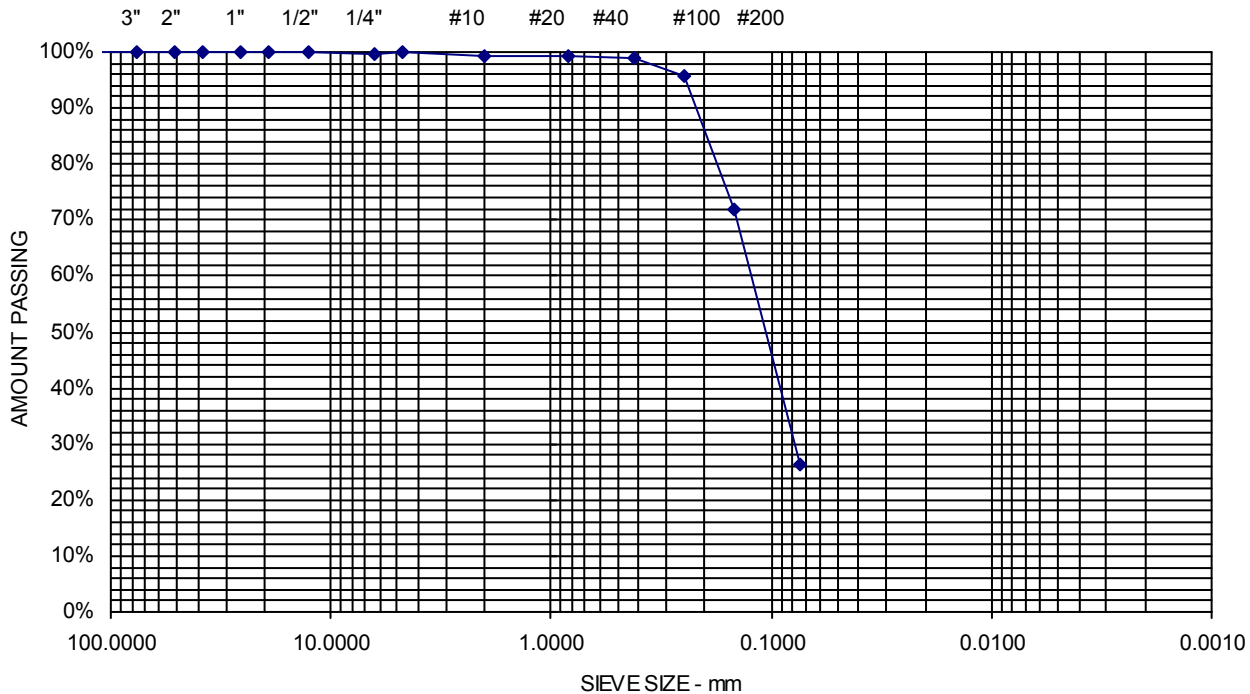
Date Received 12/29/2017

Date Completed 1/3/2018

Tested By PAUL SHAFFER

Material Source **B-1005 11D 80-82**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	100	
4.75 mm	No. 4	100	0% Gravel
2.00 mm	No. 10	99	
850 μm	No. 20	99	
425 μm	No. 40	99	73.6% Sand
250 μm	No. 60	96	
150 μm	No. 100	72	
75 μm	No. 200	26.4	26.4% Fines



Consolidation Test

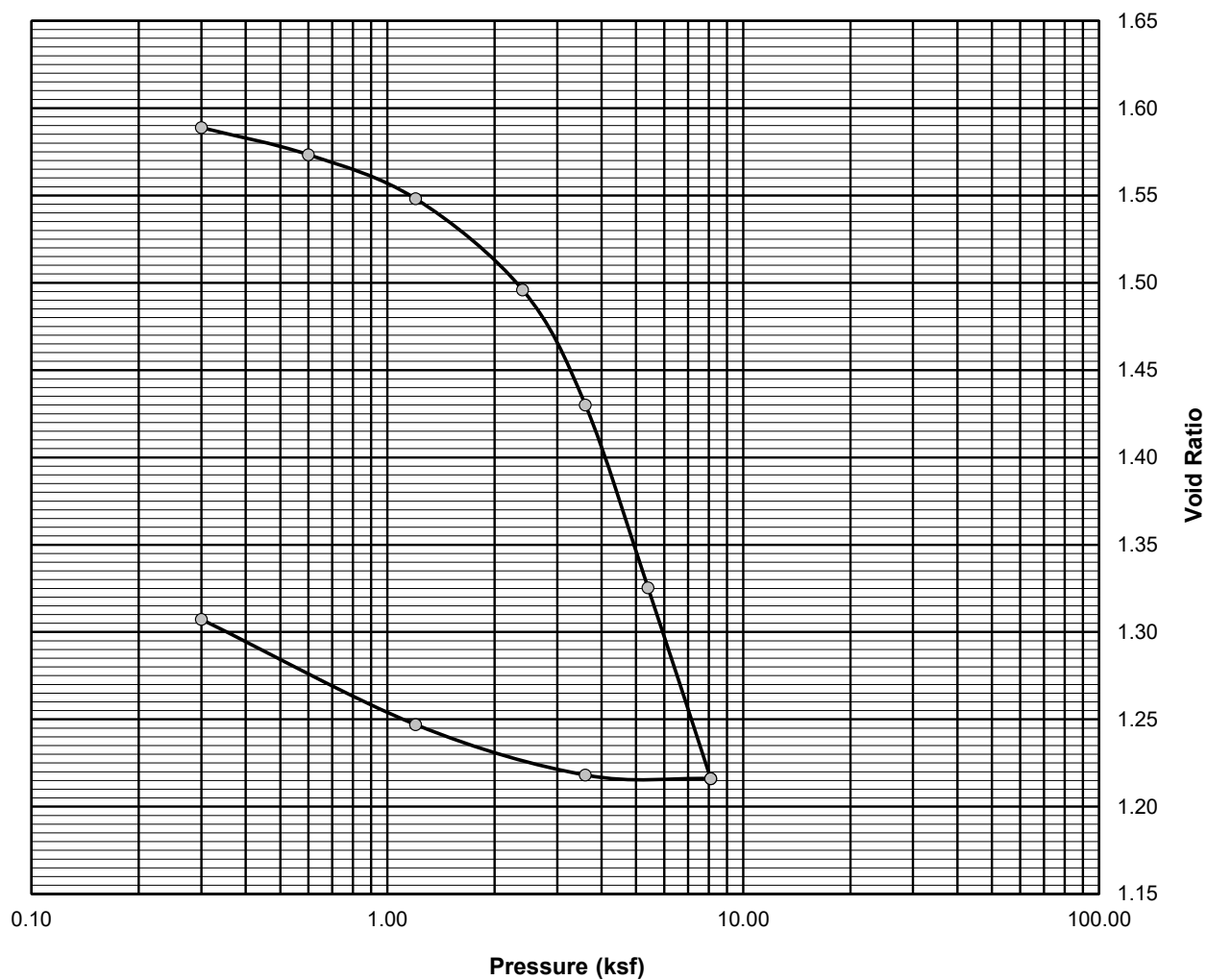
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21264B
Date: 1/30/2018

Boring: B1003
Sample: 1U
Depth: 35-37'

$P_C =$	2.7	ksf
$C_C =$	0.61	
$C_R =$	0.05	
$w =$	55.2%	
$W_L =$	55	
$W_P =$	30	



Comments:

Reviewed By



Consolidation Test

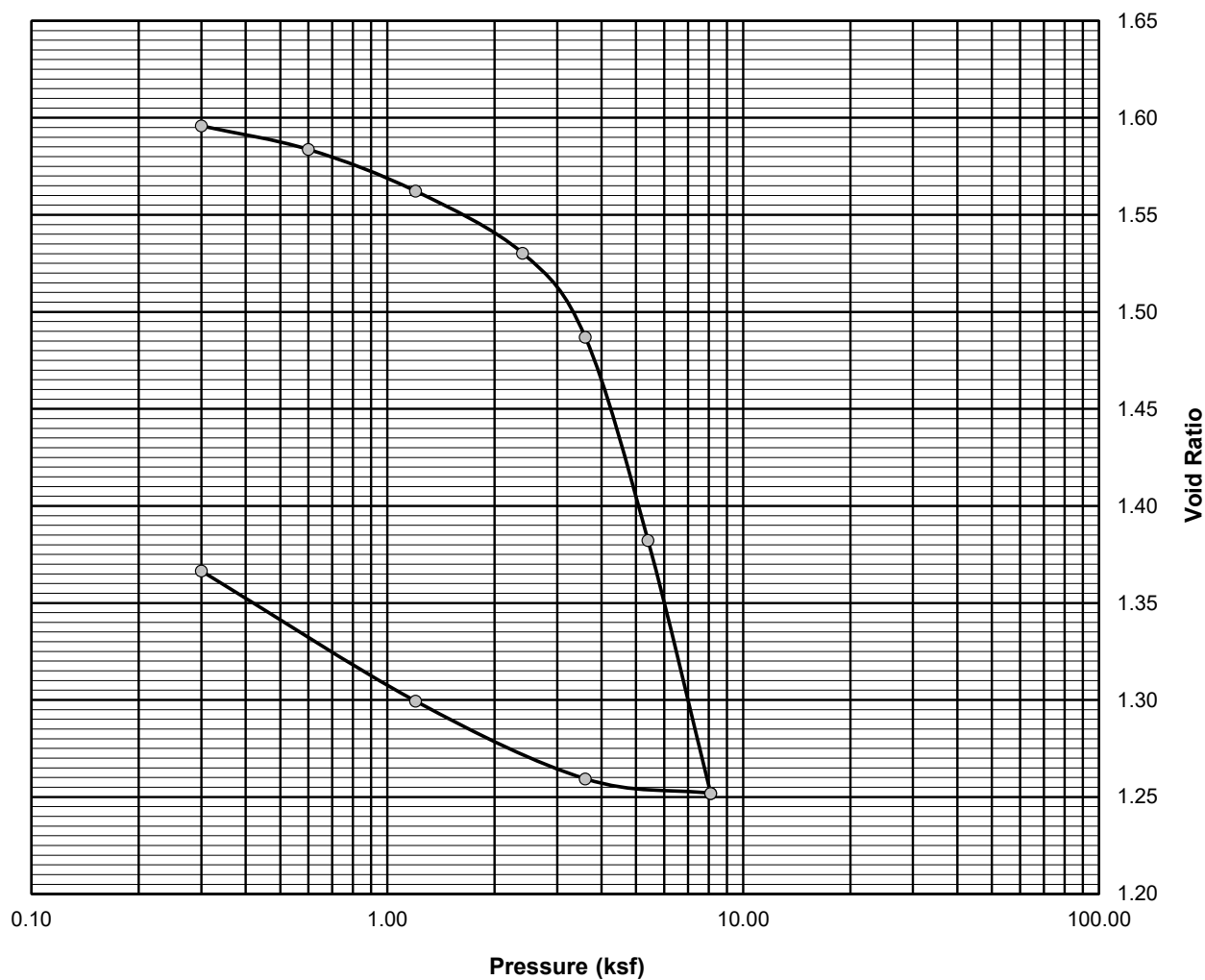
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21265B
Date: 1/30/2018

Boring: B1003
Sample: 2U
Depth: 45-47'

$P_C =$	3.1	ksf
$C_C =$	0.67	
$C_R =$	0.04	
$w =$	54.7%	
$W_L =$	48	
$W_P =$	25	



Comments:

Reviewed By



Consolidation Test

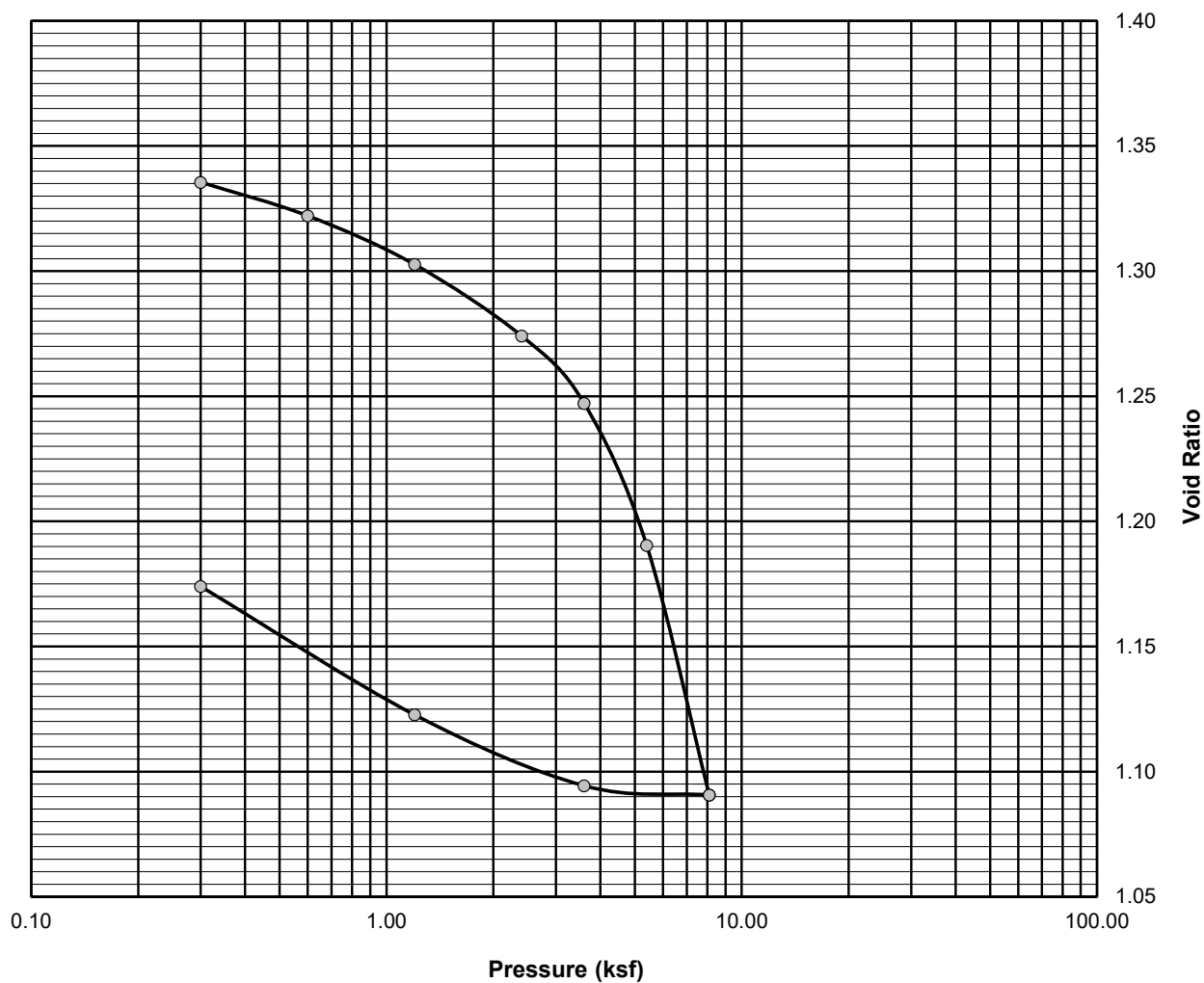
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21266B
Date: 1/30/2018

Boring: B1003
Sample: 3U
Depth: 55-57'

$P_C =$	4	ksf
$C_C =$	0.44	
$C_R =$	0.04	
$w =$	49.0%	
$W_L =$	55	
$W_P =$	27	



Comments:

Reviewed By



Consolidation Test

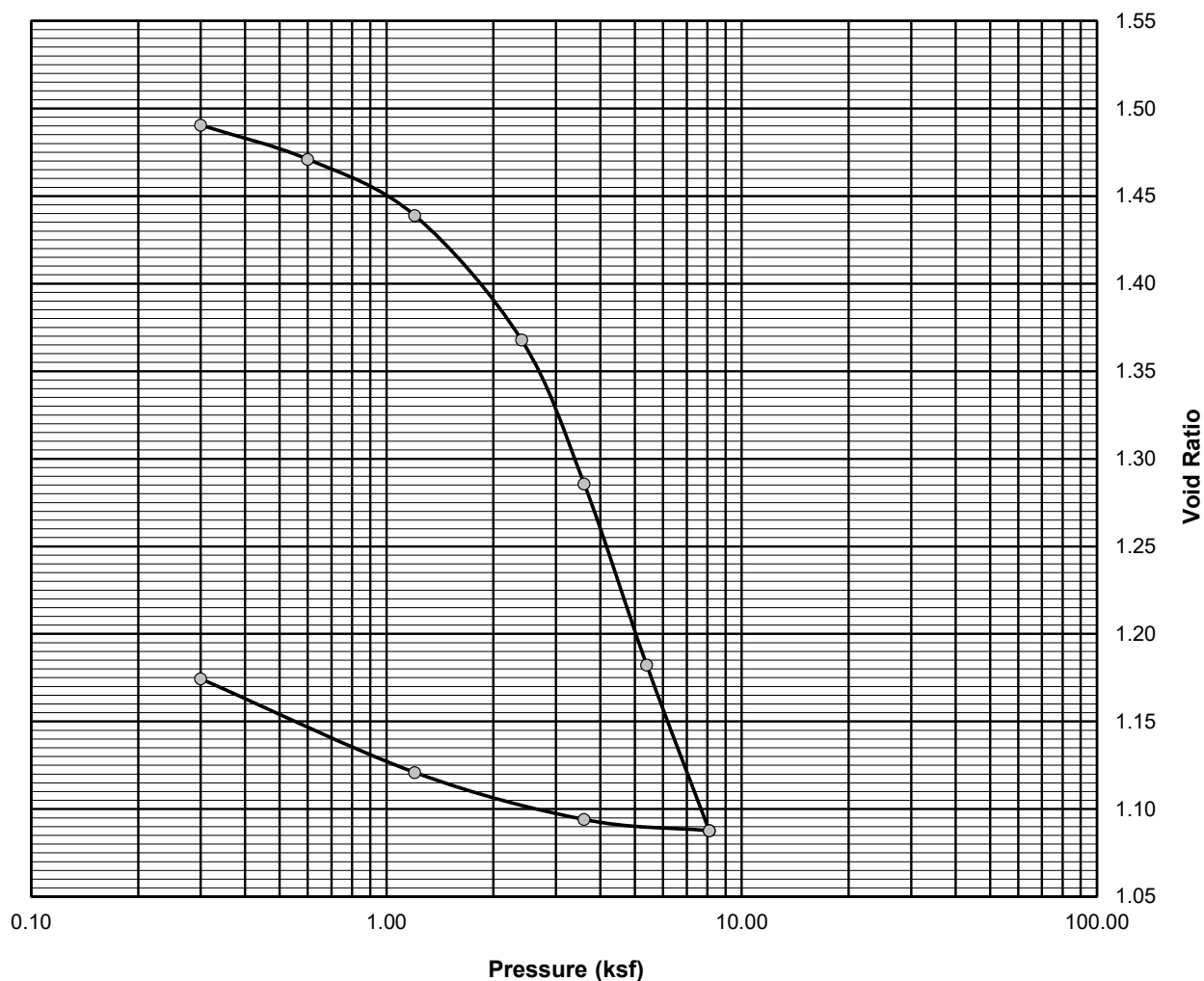
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21267B
Date: 12/29/2017

Boring: B1004
Sample: 1U
Depth: 30-32'

P_C	=	2.1	ksf
C_C	=	0.56	
C_R	=	0.06	
w	=	53.4%	
W_L	=	47	
W_P	=	48	



Comments:

Reviewed By



Consolidation Test

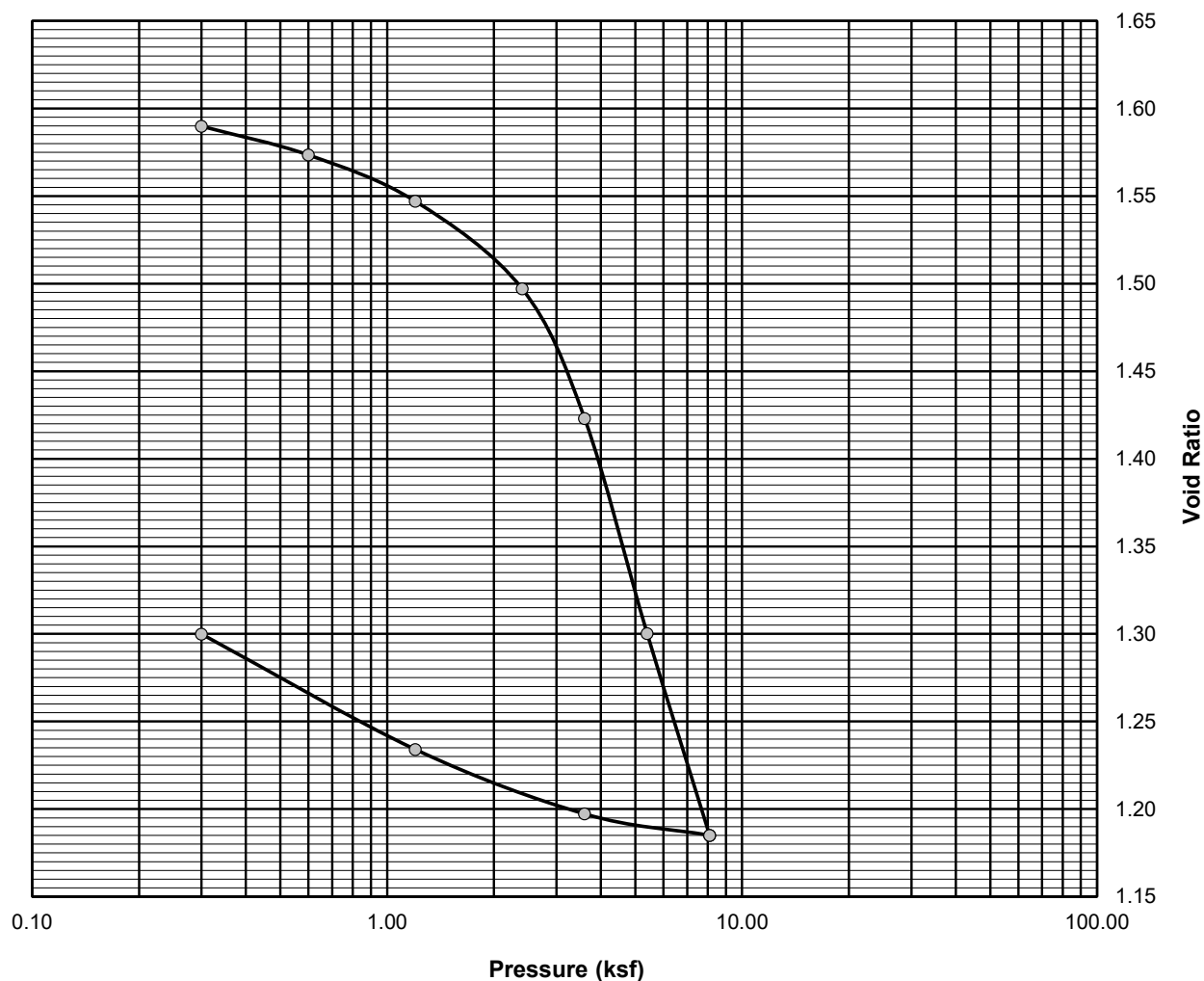
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21268B
Date: 12/29/2017

Boring: B1004
Sample: 2U
Depth: 40-42'

$P_C =$	2.9	ksf
$C_C =$	0.68	
$C_R =$	0.05	
$w =$	54.6%	
$W_L =$	53	
$W_P =$	29	



Comments:

Reviewed By



Consolidation Test

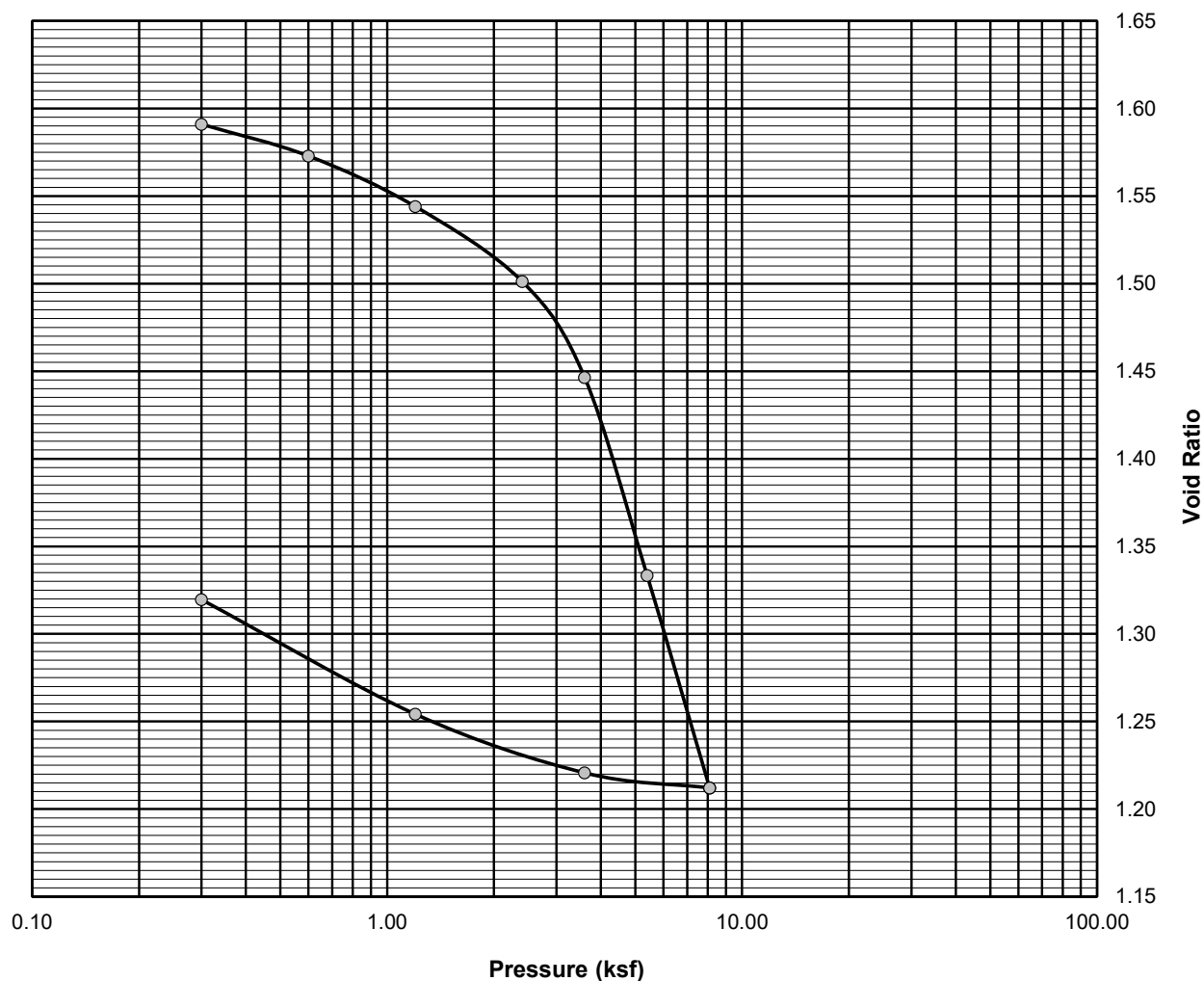
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21269B
Date: 12/29/2017

Boring: B1004
Sample: 3U
Depth: 50-52'

P_C =	3.1	ksf
C_C =	0.67	
C_R =	0.08	
w =	55.4%	
W_L =	55	
W_P =	30	



Comments:

Reviewed By



Consolidation Test

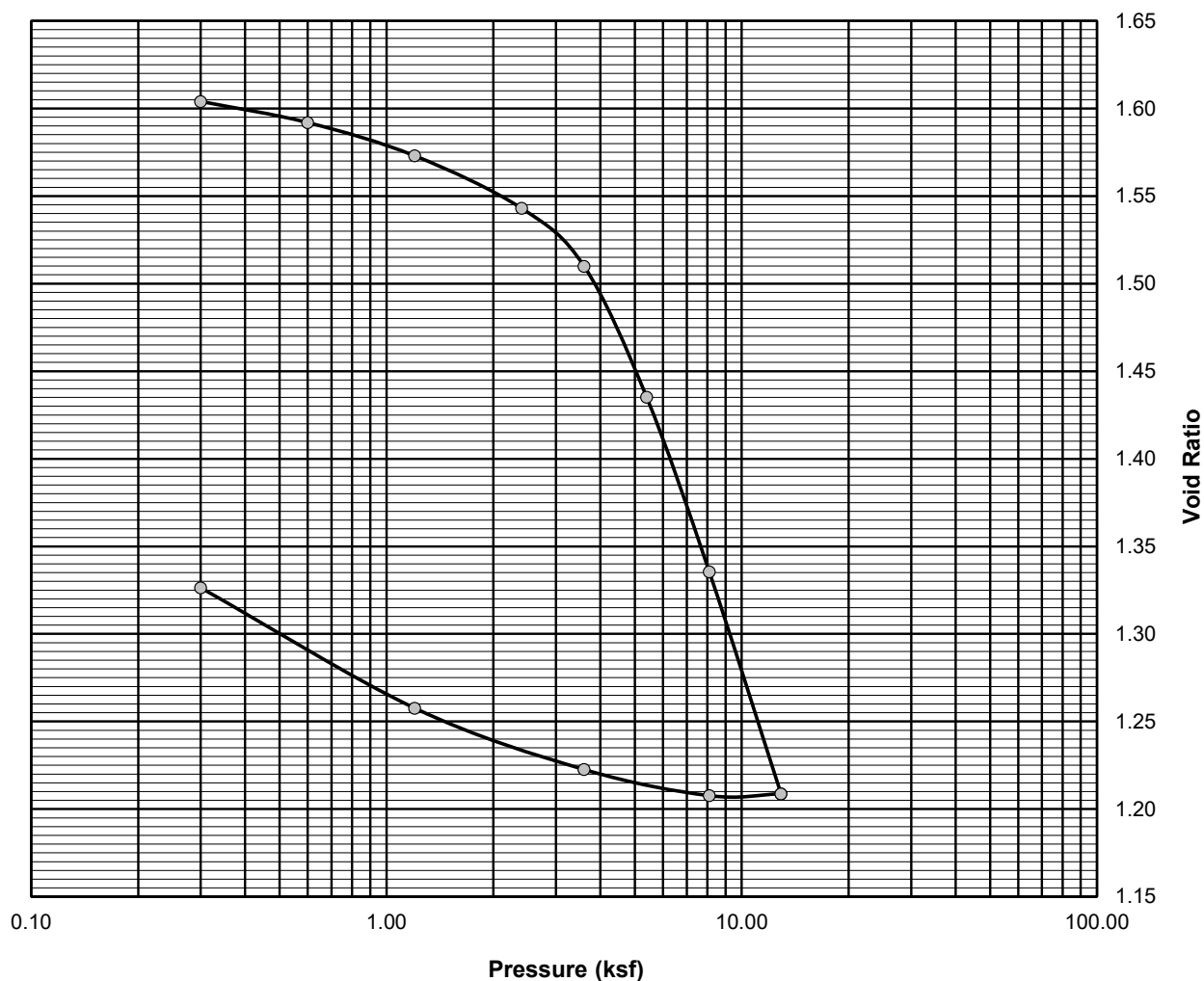
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21270B
Date: 12/29/2017

Boring: B1005
Sample: 1U
Depth: 35-37'

$P_C =$	3.8	ksf
$C_C =$	0.60	
$C_R =$	0.06	
$w =$	46.5%	
$W_L =$	49	
$W_P =$	26	



Comments:

Reviewed By



Consolidation Test

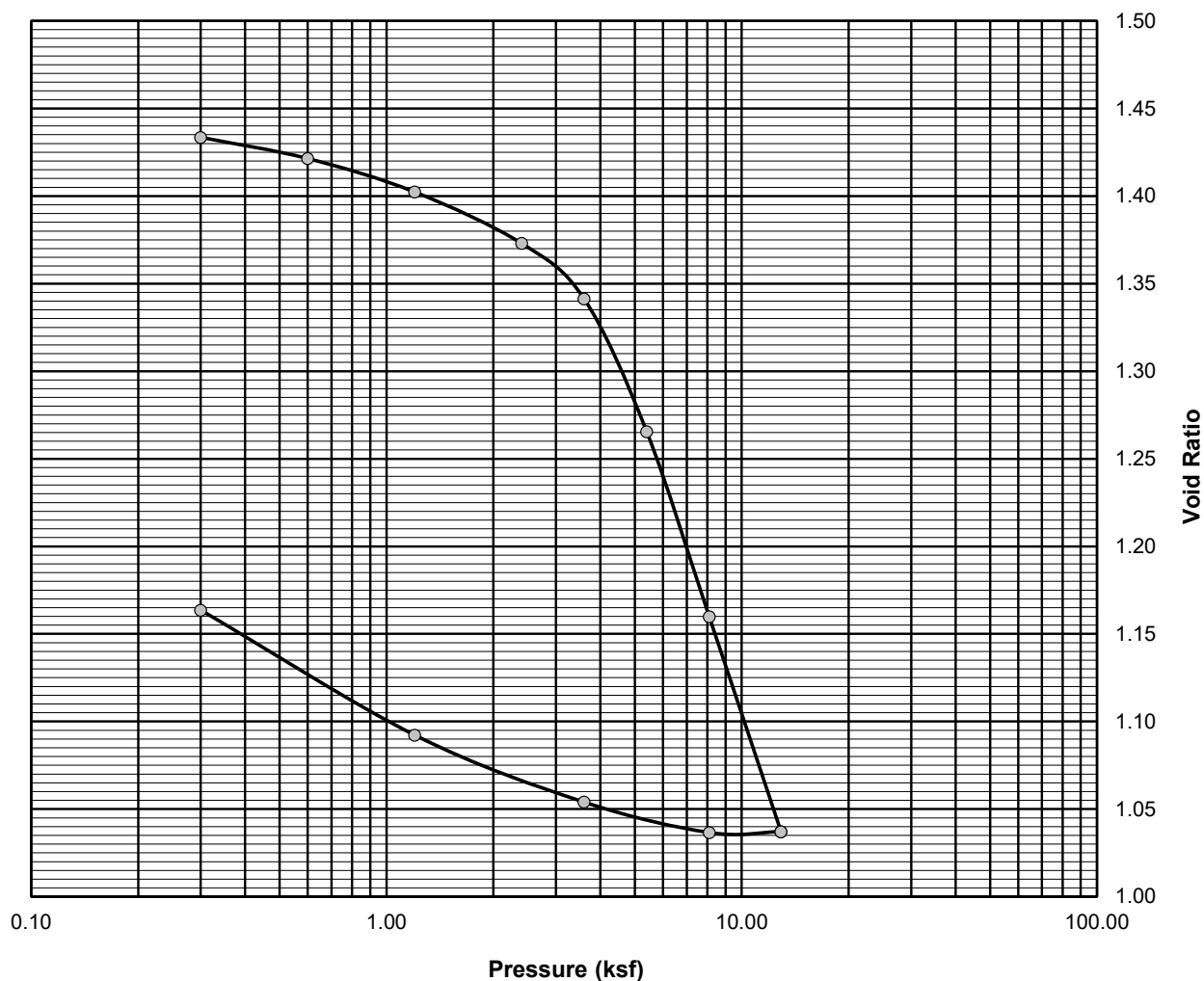
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21271B
Date: 12/29/2017

Boring: B1005
Sample: 2U
Depth: 45-47'

$P_C =$	4	ksf
$C_C =$	0.60	
$C_R =$	0.06	
$w =$	51.1%	
$W_L =$	54	
$W_P =$	29	



Comments:

Reviewed By



Consolidation Test

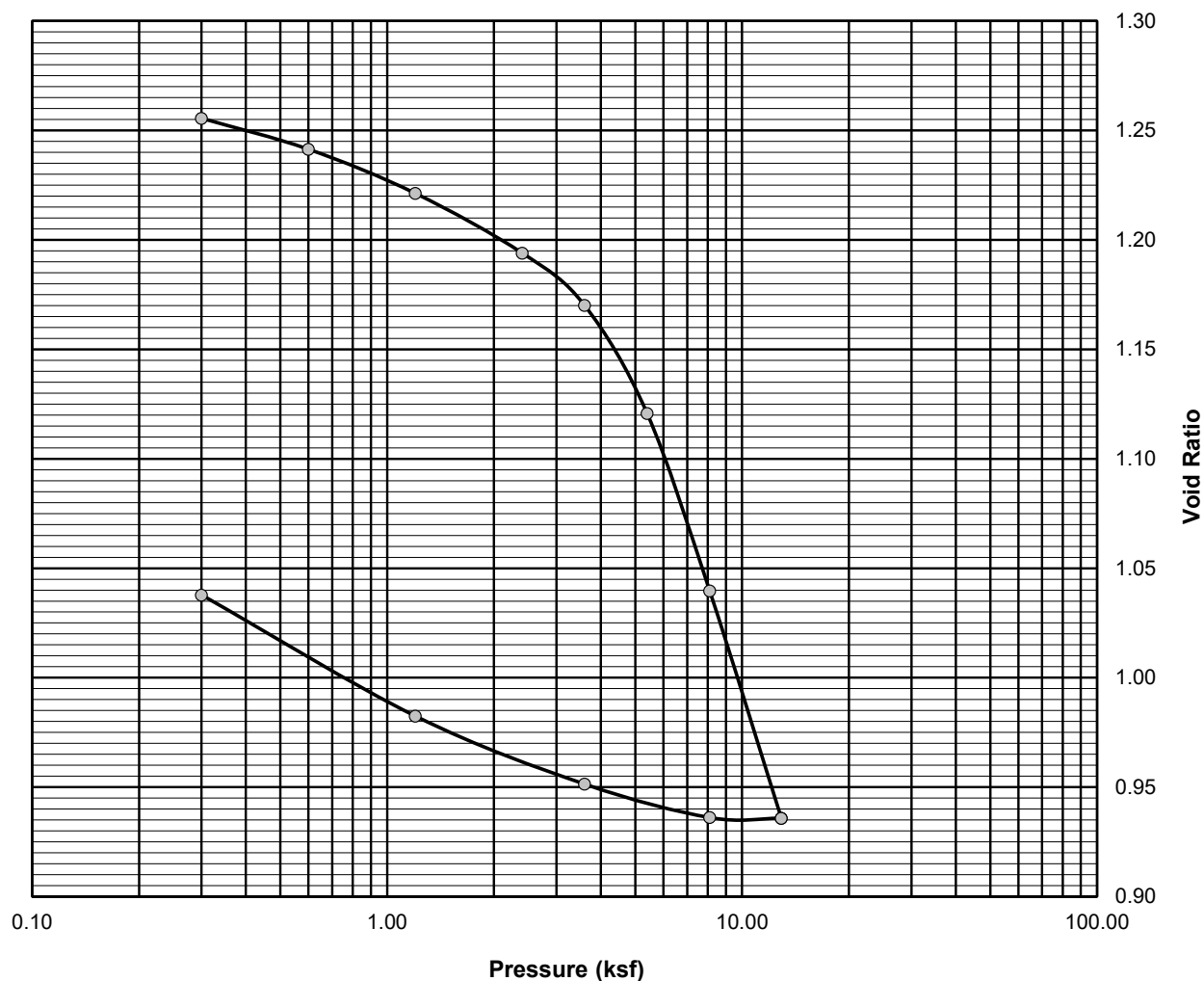
ASTM D-4767

Project Name: Proposed IMT Cold Storage Warehouse
Client: Woodard & Curran, Inc.

Project Number: 16-1314
Lab ID: 21272B
Date: 12/29/2017

Boring: B1005
Sample: 3U
Depth: 55-57'

$P_C =$	4.3	ksf
$C_C =$	0.51	
$C_R =$	0.07	
$w =$	41.2%	
$W_L =$	43	
$W_P =$	24	



Comments:

Reviewed By





ATTACHMENT C: SHEAR WAVE VELOCITY TESTING REPORT

**SHEAR WAVE VELOCITY TESTING
FORMER PORTLAND GAS WORKS SITE
400 COMMERCIAL STREET
PORTLAND, MAINE**

Prepared for:

S. W. Cole Engineering, Inc.
286 Portland Road
Gray, Maine 04039

Prepared by:

Hager-Richter Geoscience, Inc.
8 Industrial Way, Suite D10
Salem, New Hampshire 03079

File 17J109
January, 2018

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3.	Results and Discussion	5
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FIGURES

1. General Site Location
2. pVs Survey Line Locations

APPENDIX

1. Boring Locations and Logs Provided by S.W. Cole

1. INTRODUCTION

Hager-Richter Geoscience, Inc. (Hager-Richter) conducted passive surface shear wave velocity testing at the Former Portland Gasworks Site located at 400 Commercial Street in Portland, Maine in December, 2017 for S. W. Cole Engineering Inc., (S.W. Cole) of Gray, Maine. The geophysical testing was performed as part of a geotechnical investigation of the project site by S.W. Cole.

The site is the location of the former Portland Gasworks located at 400 Commercial Street in Portland. The property is located on the south side of Commercial Street at the intersection with York Street. Figure 1 shows the general location of the site. According to information provide by S.W. Cole, a low temperature warehouse is planned for the vacant Site. Stratigraphy at the Site reportedly consists of fill overlying soft clay and silt to depths of over 100 feet. Bedrock was not encountered in borings installed at the Site. S.W.Cole requested site specific shear wave velocity information as a function of depth for the soil and bedrock to a depth of 100 feet for the determination of seismic site class at the site.

The surface shear wave velocity testing was conducted using the passive shear wave seismic (pVs) method. Figure 2 is a Google Earth image of the site showing the location of the three seismic testing lines specified by S.W. Cole.

Jeffrey Reid, P.G., and Sean Reid of Hager-Richter conducted the seismic testing on December 19, 2017. The project was coordinated with Mr. Tim Boyce, P.E., of S.W. Cole. Mr. Patrick Otto, also of S.W. Cole, was present on site for the fieldwork and specified the pVs line location. Data analysis and interpretation were completed at the Hager-Richter offices. Original data and field notes will be retained in the Hager-Richter files for a minimum of three years.

2. EQUIPMENT AND PROCEDURES

2.1 *Method*

The passive shear wave seismic (pVs) method is a geophysical method to determine a shear-wave velocity profile at a single location by analyzing a particular type of seismic wave recorded on a multichannel record. The name pVs is derived from p for passive and Vs for velocity of shear waves. The pVs method, also called the Refraction Microtremor method, or ReMi™, uses Rayleigh waves, a particular kind of wave first described by Lord Rayleigh in 1885. Such waves are dispersive (meaning that the velocity is a function of the wavelength), and the amplitude of such waves decreases with depth. The velocity depends primarily on the shear wave velocities and layering of the subsurface material.

Rayleigh waves are a significant part of the ambient subsurface noise at most, if not all, sites. There are many sources of such noise, including, but not limited to, wind, pedestrian and vehicular traffic, surface and subway trains, and construction activities. Although such noise can be troublesome for most seismic methods, it is the source of signals for the pVs method, and the higher the noise level, the better the results for this method.

Low frequency (4.5 Hz) geophones are installed five feet apart along a straight line and connected to a seismograph. The ambient noise is recorded for 30 seconds two or three times, and examined to be sure that noise of sufficiently low frequency is present. If the noise is sufficient, then 10 to 15 such records are acquired. If the noise spectra do not reach sufficiently low frequencies, then one walks or runs along the testing line during data acquisition to add low frequency noise to the ambient noise. The surface waves used in the pVs method, considered noise in seismic refraction and seismic reflection surveys, are enhanced during data acquisition and processing for the pVs method. The seismic data are analyzed using SeisOpt® ReMi™, a commercially licensed software package developed by Optim, Inc. located at the University of Nevada at Reno. Results are normally presented as 1-D plots or in tabular form showing shear wave velocity as a function of depth for the center point of the seismic line.

2.2 *Determination of Average Shear Wave Velocity for Building Code Purposes*

The pVs method determines (a) the shear wave velocity at the mid point along a survey line for several layers, averaged over the length of the survey line, and (b) the average shear wave velocity V_{avg} for site classification for seismic design in accordance with building codes. Similar calculations can be performed with the results of the shear wave velocity survey. The average value V_{avg} is determined using the equation 16-44 of the IBC as follows:

$$V_{avg} = \left(\sum_{i=1}^N d_i \right) / \sum_{i=1}^N d_i / V_i$$

where d_i is thickness of layer i
 V_i is shear wave velocity of layer i
 N denotes the total number of layers

The Seismic Site Class, *based solely on average shear wave velocity*, is defined by the IBC as follows:

Site Class	Soil Profile Name	Soil Shear Wave Velocity (ft/s)
A	Hard rock	$V_s > 5000$
B	Rock	$2500 < V_s \leq 5000$
C	Very dense soil and soft rock	$1200 < V_s \leq 2500$
D	Stiff soil profile	$600 \leq V_s \leq 1200$
E	Soft soil profile	$V_s < 600$

Although the IBC provides other methods to determine the Site Class, such as standard penetration resistance (blow counts) and soil undrained shear strength, this report provides shear wave velocity data only. There is no consideration of other factors that may affect a site class such as liquefaction. The final determination of seismic site class should be made by the project engineer.

2.3 *Equipment*

We used a 48-channel digital seismograph (Geometrics Geode) coupled to 48 geophones to acquire the pVs data for the subject testing. We used 4.5-Hz frequency vertical geophones for the subject shear wave velocity testing.

2.4 *Limitations of the Method*

As with all physical measurements, there is experimental error in the velocities that are determined using the passive shear wave velocity method. For the pVs method, the accuracy of V_{avg} is stated by Optim, Inc. to be 5-15%.

The depth of investigation is a function of the noise spectrum, and long wave lengths (low frequencies) are required to determine velocity at large depths. Noise levels can be improved by a person running along the seismic spread during data acquisition.

2.5 *Site Specific*

The locations of the pVs test lines at the subject site are shown in Figure 2. The position of the pVs testing lines were located using a Trimble Geo 7X CM GPS receiver coupled with a Zephyr-2 external antenna. The pVs data were acquired using 48 4.5Hz geophones and a geophone spacing of 6 feet for Line 1 and 5 feet for Lines 2 and 3. The pVs method yields a simple vertical shear wave velocity profile for the mid-point of the test line. The seismic source for the pVs testing was ambient noise from nearby traffic and activity as well as thumping along the lines with a sledge hammer. Photo 1 shows the general surface conditions encountered.

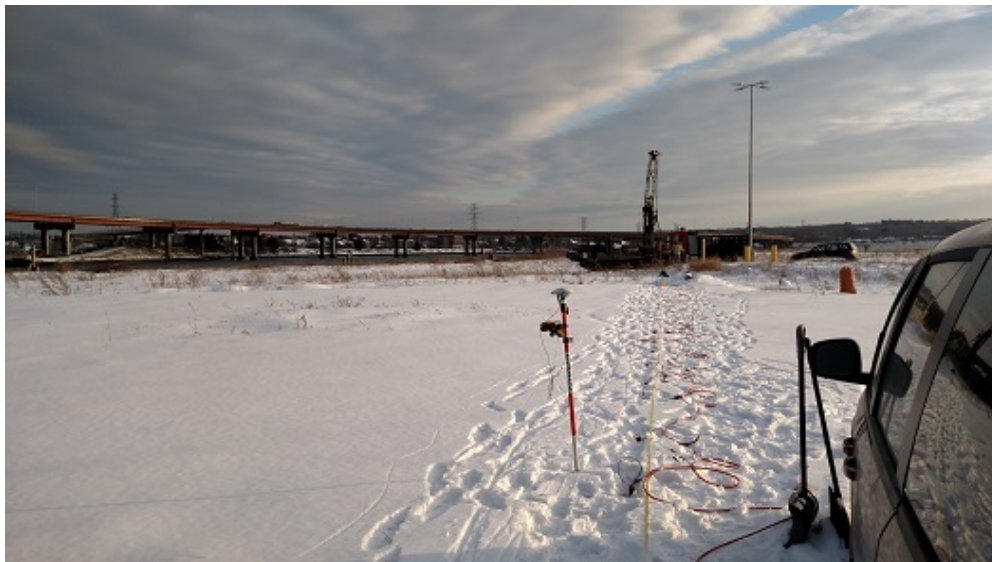


Photo 1. View looking south along pVs Test Line 3. Geophones were installed into the sand and gravel below the snow. Note the S.W. Cole drill rig in the background.

3. RESULTS AND DISCUSSION

The surface shear wave velocity testing was conducted using the passive shear wave seismic (pVs) method at three test locations specified by S.W. Cole and designated as Lines 1-3. The test locations and center points for the velocity profiles are shown in Figure 2.

According to information provided by S.W.Cole, stratigraphy consists of fill overlying soft clay and silt to depths of over 100 feet. Bedrock was not encountered in borings installed at the Site.

The quality for the pVs data at the subject site is judged to be very good. The results of the pVs testing are reported in Table 1. The pVs results are derived over test lines that span about 200-250 feet, providing an average velocity structure over the length of the test line. However, the borings provide very localized point information. Because of the localized nature of the boring data, no attempt was made to “force” a specific velocity model based on the boring data provided by SW Cole to remove any possible local bias from a point source. For modeling purposes, the subsurface stratigraphy was divided into four or five discrete units. The layer thicknesses that provide the best statistical fit to the dispersion curve are used for the models.

The root mean square error for the fit of the dispersion curves versus the measured data using the model velocities is 1.6% , 1.9%, and 2.9%, respectively, for pVs Lines 1-3. These very low error values indicate that the models fit the data extremely well. While the resulting velocity units do not necessarily correlate with specific lithologic units identified in any individual boring, there is very good general correlation between the generated velocity models the general site-wide stratigraphy.

The shear wave velocities for the individual stratigraphic modeled units are provided in Table 1. The average value of the velocity of shear waves for the depth interval of 0-100 ft based on Equation 1 of the IBC , V_{s100} , are provided in Table 1 as 650 fps, 667 fps, and 611 fps, respectively, for Lines 1-3.

TABLE 1: pVs TEST RESULTS

Geologic Unit *	Line 1	
	Depth Interval (ft)	V _s ** (ft/s)
Loose Fill	0 - 10	422
More Dense Fill	10 - 16.5	1,582
Soft Clay and Silt	16.5 - 65	503
More Dense Sand and Silt (Till ?)	65 - 100	1,178
V _{s100} (ft/s)	650	
RMS	1.6%	
Geologic Unit *	Line 2	
	Depth Interval (ft)	V _s ** (ft/s)
Loose Fill	0 - 11	481
More Dense Fill	11 - 17	1,846
Soft Clay and Silt	17 - 69	537
More Dense Sand and Silt (Till ?)	69 - 100	1,156
V _{s100} (ft/s)	667	
RMS	1.9%	
Geologic Unit *	Line 3	
	Depth Interval (ft)	V _s ** (ft/s)
Loose Fill	0 - 5	456
Dense Fill	5 - 13	756
Soft Clay and Silt	13 - 52	503
Soft Clay and Silt (cont.)	52 - 80	532
More Dense Sand and Silt (Till ?)	80 - 100	1,657
V _{s100} (ft/s)	611	
RMS	2.9%	

* Part of the description of stratigraphy is based on boring logs provided by S.W. Cole

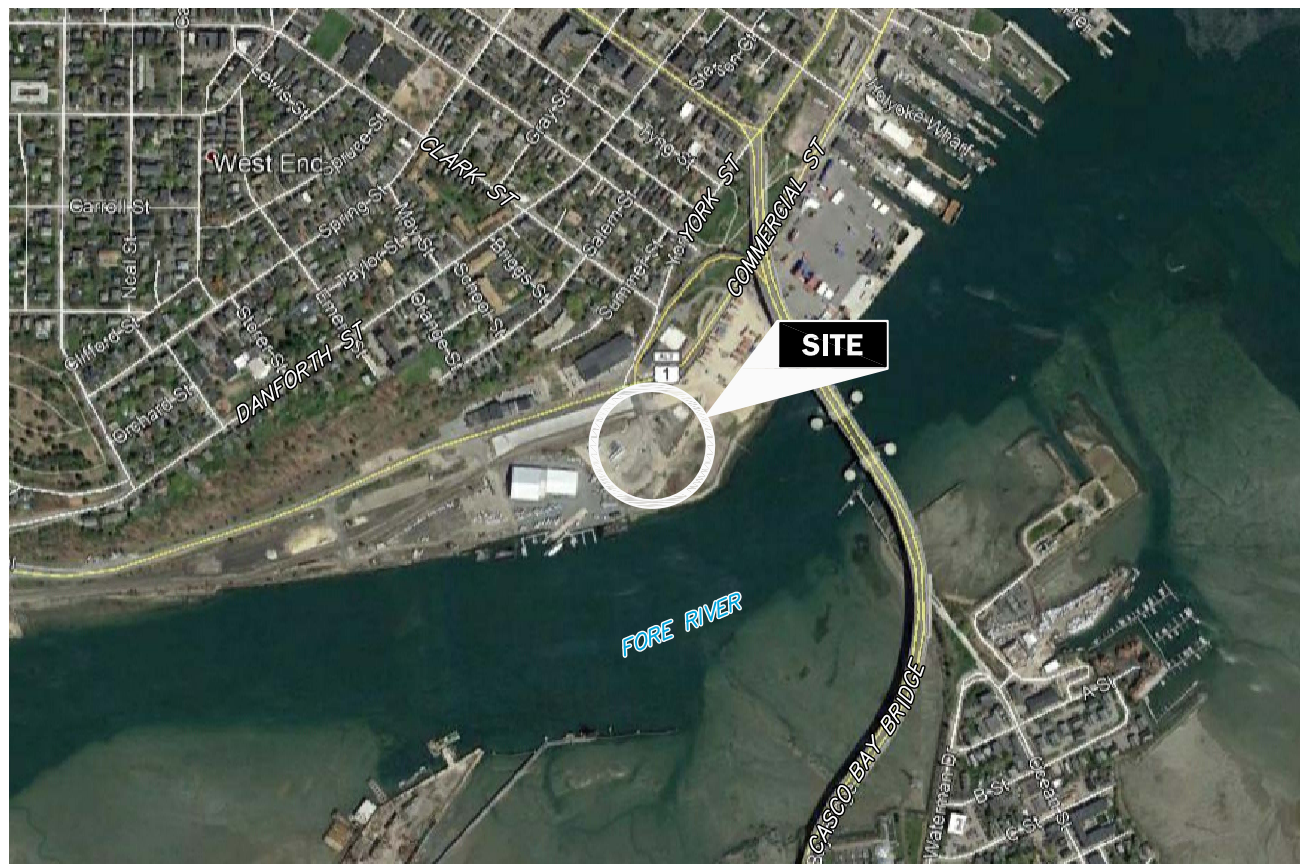
** Shear wave velocity profile is determined for the mid-point of the testing line

4. LIMITATIONS

This report was prepared for the exclusive use of S. W. Cole Engineering, Inc. (Client). No other party shall be entitled to rely on this Report or any information, documents, records, data, interpretations, advice or opinions given to Client by Hager-Richter Geoscience, Inc. (H-R) in the performance of its work. The Report relates solely to the specific project for which H-R has been retained and shall not be used or relied upon by Client or any third party for any variation or extension of this project, any other project or any other purpose without the express written permission of H-R. Any unpermitted use by Client or any third party shall be at Client's or such third party's own risk and without any liability to H-R.

H-R has used reasonable care, skill, competence and judgment in the preparation of this Report consistent with professional standards for those providing similar services at the same time, in the same locale, and under like circumstances. Unless otherwise stated, the work performed by H-R should be understood to be exploratory and interpretational in character and any results, findings or recommendations contained in this Report or resulting from the work proposed may include decisions which are judgmental in nature and not necessarily based solely on pure science or engineering. It should be noted that our conclusions might be modified if subsurface conditions were better delineated with additional subsurface exploration including, but not limited to, test pits, soil borings with collection of soil and water samples, and laboratory testing.

Except as expressly provided in this limitations section, H-R makes no other representation or warranty of any kind whatsoever, oral or written, expressed or implied; and all implied warranties of merchantability and fitness for a particular purpose, are hereby disclaimed.



APPROXIMATE SCALE (feet)

0 1000 2000



LOCATION

NOTE:

Modified from Google Earth Pro aerial photograph.

Figure 1
General Site Location
Former Portland Gasworks Site
Commercial Street
Portland, Maine

File 17J109

January, 2018

HAGER-RICHTER
Salem, NH | Fords, NJ



N



LEGEND



pVs TEST LINE
WITH MIDPOINT

SCALE (feet)



NOTE:

Modified from Google Earth Pro aerial photograph.

Figure 2
pVs Test Line Locations
Former Portland Gasworks Site
Commercial Street
Portland, Maine

File 17J109

January, 2018

HAGER-RICHTER
Salem, NH | Fords, NJ

APPENDIX

Boring Location Plan and Logs Provided by S.W. Cole



BORING LOG

CLIENT: Woodard & Curran
 PROJECT: Proposed IMT West Cold Storage Facility
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-1001
 SHEET: 1 of 1
 PROJECT NO. 16-1314
 DATE START: 12/20/2017
 DATE FINISH: 12/20/2017

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 14' +/- TOTAL DEPTH (FT): 25.0 LOGGED BY: Patrick Otto
 DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
 RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
 HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 300 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
 HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
 WATER LEVEL DEPTHS (ft): 4 ft 12/20/2017 Free water at 4'
 GENERAL NOTES: Backfilled borehole with bentonite and drill cuttings.

KEY TO NOTES AND SYMBOLS: Water Level
 At time of Drilling
 At Completion of Drilling
 After Drilling
 D = Split Spoon Sample
 U = Thin Walled Tube Sample
 R = Rock Core Sample
 V = Field Vane Shear
 Pen. = Penetration Length
 Rec. = Recovery Length
 bpf = Blows per Foot
 mpf = Minute per Foot
 WOR = Weight of Rods
 WOH = Weight of Hammer
 RQD = Rock Quality Designation
 PID = Photoionization Detector
 S_v = Field Vane Shear Strength, kips/sq.ft.
 q_u = Unconfined Compressive Strength, kips/sq.ft.
 N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
			1D		0.5-2.5	24/18	13-9-7-8		Medium dense, brown silty gravelly SAND (FILL)		
			2D		5-7	24/12	5-4-6-4		Medium dense to loose, black gravel, some silt, some sand with wood (FILL) -petroleum odor		
			3D		10-12	24/12	4-3-4-3		-petroleum odor and sheen below 10'		
			4D		15-17	24/10	3-3-4-3		FILL and coal tar		
			5D		20-21.8	21/5	8-7-6-50/3"				
									Concrete		
									Coal tar in casing prevented further drilling		

Bottom of Exploration at 25.0 feet
 Abandoned hole at 25', excessive coal tar

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-1001



BORING LOG

BORING NO.: **B-1001A**

SHEET: 1 of 2

PROJECT NO. 16-1314

DATE START: 12/20/2017

DATE FINISH: 12/20/2017

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 14' +/- TOTAL DEPTH (FT): 52.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 300 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): ∇ 5 ft 12/20/2017 Soils saturated below 5'
GENERAL NOTES: Moved boring 25' +/- west of B-1001. Backfilled borehole with bentonite and drill cuttings.

KEY TO NOTES AND SYMBOLS: ∇ Water Level ∇ At time of Drilling ∇ At Completion of Drilling ∇ After Drilling
D = Split Spoon Sample U = Thin Walled Tube Sample R = Rock Core Sample V = Field Vane Shear
Pen. = Penetration Length Rec. = Recovery Length bpf = Blows per Foot mpf = Minute per Foot
WOR = Weight of Rods WOH = Weight of Hammer RQD = Rock Quality Designation PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft. q_u = Unconfined Compressive Strength, kips/sq.ft. N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10	5								Brown-black gravelly silty SAND with brick (FILL)	∇	
5	10										
0	15		1D	X	15-17	24/12	9-6-4-7		-petroleum odor and sheen		
-5	20		2D	X	20-22	24/22	WOH FOR 12"-2-3 w =31.2 % O =2.0%		19.0 Very loose to loose, gray SAND and silt, some clay with shells (Bay Mud)		
-10	25		3D	X	25-27	24/20	2-4-3-3		24.0 Loose to medium dense, gray SAND and silt with frequent silty clay layers		
-15	30		4D	X	30-32	24/18	3-5-5-6 w =24.5 %				
-20	35		5D	X	35-37	24/2	4-3-10-9				
-25											

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1001A**



BORING LOG

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1001A**

SHEET: 2 of 2

PROJECT NO. 16-1314

DATE START: 12/20/2017

DATE FINISH: 12/20/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
			6D	X	40-42	24/24	4-3-4-6		Loose to medium dense, gray silty SAND with clay layers		
-30	45		7D	X	45-47	24/24	WOH FOR 12"-5-5				
-35	50		8D	X	50-52	24/18	7-11- 11-12		49.0 Medium dense, brown silty SAND with clay layers		
									52.0 Bottom of Exploration at 52.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1001A**



BORING LOG

BORING NO.: **B-1002**
SHEET: 1 of 2
PROJECT NO. 16-1314
DATE START: 12/27/2017
DATE FINISH: 12/27/2017

CLIENT: Woodard & Curran
PROJECT: Proposed IMT West Cold Storage Facility
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 12' +/- TOTAL DEPTH (FT): 52.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted Diedrich D-50 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 300 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.79 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): ∇ 7 ft 12/27/2017 Soils saturated below 7'

GENERAL NOTES: Backfilled borehole with bentonite to 16' below ground surface.

KEY TO NOTES AND SYMBOLS: Water Level
 ∇ At time of Drilling D = Split Spoon Sample Pen. = Penetration Length WOR = Weight of Rods
 ∇ At Completion of Drilling U = Thin Walled Tube Sample Rec. = Recovery Length WOH = Weight of Hammer
 ∇ After Drilling R = Rock Core Sample bpf = Blows per Foot RQD = Rock Quality Designation q_u = Unconfined Compressive Strength, kips/sq.ft.
V = Field Vane Shear mpf = Minute per Foot PID = Photoionization Detector N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10			1D	X	3-5	24/126	4-4-3-2		Concrete		
5			2D	X	5-7	24/15	4-4-4-4		1.1 Loose, brown silty SAND (FILL)		
5									6.5 Loose, black silty SAND (FILL) -petroleum odor	∇	
10			3D	X	10-12	24/14	4-7-9-6		9.0 Medium dense, gray gravelly SAND, some silt -petroleum odor		
0									14.0 Very loose, gray silty SAND with organics -petroleum odor and sheen		
15			4D	X	15-17	24/11	4-1-1-1	w =28.8 % O =1.9%	19.0 Medium dense, gray silty gravelly SAND		
-5									24.0 Medium dense to loose, light brown silty SAND with silty clay layers		
20			5D	X	20-22	24/14	2-5-7-13				
-10											
25			6D	X	25-27	24/14	3-3-9-7	w =25 %			
-15											
30			7D	X	30-32	24/12	4-8-8-7				
-20											
35			8D	X	35-37	24/20	5-4-6-6	w =22.4 %			
-25											

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1002**



BORING LOG

CLIENT: Woodard & Curran
 PROJECT: Proposed IMT West Cold Storage Facility
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1002**
 SHEET: 2 of 2
 PROJECT NO. 16-1314
 DATE START: 12/27/2017
 DATE FINISH: 12/27/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
-30	45		9D	X	40-42	24/18	6-4-2-5		40.0 Loose, gray silty SAND, some gravel with silty clay layers		
-35									45.0 Medium dense, gray SAND and silt		
-50			10D	X	50-52	24/14	4-8-18-19	w =23.1 %			
-40									52.0 Bottom of Exploration at 52.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1002**



BORING LOG

BORING NO.: B-1003**SHEET:** 1 of 2**PROJECT NO.** 16-1314**DATE START:** 12/21/2017**DATE FINISH:** 12/21/2017**CLIENT:** Woodard & Curran**PROJECT:** Proposed IMT West Cold Storage Facility**LOCATION:** West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 12' +/- **TOTAL DEPTH (FT):** 82.0 **LOGGED BY:** Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 300 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ∇ 4.5 ft 12/21/2017 Free water at 4.5'

GENERAL NOTES: Moved borehole 8-10' west after drilling through concrete at 4-5' and void from 5-10'. Backfilled borehole with bentonite to 16' below ground surface.

KEY TO NOTES AND SYMBOLS: ∇ Water Level ∇ At time of Drilling ∇ At Completion of Drilling ∇ After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10									Medium dense, black-brown silty gravelly SAND with brick (FILL) -Petroleum odor at 5-7'		
5			1D	X	5-7	24/19	5-12-8-3				
5											
10			2D	X	10-11.5	18/7	1-1-1-25/0"		Very loose		
0									11.5 Concrete		
15			3D	X	15-17	24/13	6-12-12-16		13.0 Medium dense, black sandy SILT with ash (FILL) -Petroleum odor and sheen		
-5											
20			4D	X	20-22	24/9	6-6-4-3	w = 22.6 % O = 1.7%	19.0 Medium dense to loose, gray-brown silty SAND with wood		
-10											
25			5D	X	25-27	24/15	WOH-1-1-1	w = 39.7 % O = 2.8%	Very loose, gray sandy SILT with shells and organics (Bay Mud)		
-15											
30			6D	X	30-32	24/24	WOH FOR 24"		29.0 Medium to stiff, gray silty CLAY with shells and organics to 32'		
-20											
35			1U		35-37	24/24					
-25			1V		37-37.5	6		W _L =55 W _P =30 S _v =1.55/0.31ksf S _v =1.61/0.31ksf			
			1V		37.5-38	6					

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: B-1003



BORING LOG

CLIENT: Woodard & Curran
 PROJECT: Proposed IMT West Cold Storage Facility
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1003**
 SHEET: 2 of 2
 PROJECT NO. 16-1314
 DATE START: 12/21/2017
 DATE FINISH: 12/21/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
-30									Medium to stiff, gray silty CLAY		
-45			2U		45-47	24/24					
-35			2V		47-47.5	6			W _L =55 W _P =27 S _v =1.92/0.43ksf S _v =2.11/0.62ksf		
			2V'		47.5-48	6					
-50											
-55			3U		55-57	24/24					
-45			3V		57-57.5	6			W _L =48 W _P =25 S _v =1.61/0.43ksf S _v =1.92/0.43ksf		
			3V'		57.5-58	6					
-60			7D		60-62	24/24		WOH- WOH FOR 12"-2		59.0	Very loose, gray SAND and silt with shells and wood
-50											
-65			8D		65-67	24/24		1-1-2-2	w =23.6 %		
-55											
-70			9D		70-72	24/19		7-16- 21-22	w =16.5 %	69.0	Dense, gray fine to medium SAND, some gravel, some silt
-60											
-75											
-80			10D		80-82	24/21		8-18- 20-29	w =20.6 %	79.0	Dense, gray silty fine to medium SAND
-70											
										82.0	Bottom of Exploration at 82.0 feet

BORING / WELL 16-1314.GPJ SWCE TEMPLATE.GDT 1/29/18

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1003**



BORING LOG

BORING NO.: **B-1004**

SHEET: 1 of 2

PROJECT NO. 16-1314

DATE START: 12/18/2017

DATE FINISH: 12/18/2017

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 10' +/- TOTAL DEPTH (FT): 82.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 140 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): ∇ 8 ft 12/18/2017 Soils wet 5-7' and saturated below 8'.
GENERAL NOTES: Backfilled borehole with bentonite to 22' below ground surface.

KEY TO NOTES AND SYMBOLS: Water Level
 ∇ At time of Drilling D = Split Spoon Sample Pen. = Penetration Length WOR = Weight of Rods
 ∇ At Completion of Drilling U = Thin Walled Tube Sample Rec. = Recovery Length WOH = Weight of Hammer
 ∇ After Drilling R = Rock Core Sample bpf = Blows per Foot RQD = Rock Quality Designation S_v = Field Vane Shear Strength, kips/sq.ft.
V = Field Vane Shear mpf = Minute per Foot PID = Photoionization Detector q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
			1D	X	0-2	24/16	5-5-6-6		Medium dense, brown-gray-black silty gravelly SAND (FILL)		
5	5		2D	X	5-7	24/8	4-1-1-1		5.5 Very loose, gray SAND and silt, some clay with shells (FILL) -naphthalene odor	∇	
0	10		3D	X	10-12	24/10	5-3-6-6		8.0 Loose, brown-black silty SAND and gravel (FILL) -petroleum sheen and naphthalene odor		
-5	15		4D	X	15-17	24/12	2-3-2-2				
-10	20		5D	X	20-22	24/13	1-2-1-1	w=31 % O=1.8%	19.0 Very loose, gray SILT and sand, trace gravel with shells, organics (Bay Mud)		
-15	25		6D	X	25-27	24/24	WOH FOR 24"	w=48.3 % O=2.9%	24.0 Medium to stiff, gray silty CLAY with sand layers/seams		
-20	30		1U	■	30-32	24/12		W _L =47 W _P =28 w=53.4 % S _v =1.05/0.27ksf S _v =1.09+ksf			
			1V	■	32-32.7	8					
			1V	■	32.7- 33.4	8					
-25	35										

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1004**



BORING NO.: B-1004

SHEET: 2 of 2

PROJECT NO. 16-1314

DATE START: 12/18/2017

DATE FINISH: 12/18/2017

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

BORING / WELL 16-1314.GPJ SWCE TEMPLATE.GDT 1/29/18

BORING NO.: B-1004



BORING LOG

BORING NO.: **B-1005**

SHEET: 1 of 2

PROJECT NO. 16-1314

DATE START: 12/19/2017

DATE FINISH: 12/19/2017

CLIENT: Woodard & Curran

PROJECT: Proposed IMT West Cold Storage Facility

LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan ELEVATION (FT): 11' +/- TOTAL DEPTH (FT): 82.0 LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC DRILLER: Jeff Lee DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850 AUGER ID/OD: N/A / N/A SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic HAMMER WEIGHT (lbs): 140 / 140 CASING ID/OD: 4 in / 4 1/2 in CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81 HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): 8 ft 12/19/2017 Soils saturated below 8'

GENERAL NOTES: Backfilled borehole with bentonite to 19' below ground surface.

KEY TO NOTES AND SYMBOLS: Water Level
▽ At time of Drilling
▽ At Completion of Drilling
▽ After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
10			1D		0-2	24/16	3-6-11-18		Medium dense to very loose, brown-black silty gravelly SAND with brick (FILL) -petroleum odor and sheen below-		
5	5		2D		5-7	24/18	13-15-6-8				
0	10		3D		10-12	24/18	1-2-1-2		11.0 Very loose to medium dense, gray SAND and silt, some gravel with shells and wood (Bay Mud)		
-5	15		4D		15-17	24/7	2-1-1-3				
-10	20		5D		20-22	24/16	4-6-5-6	w =25.5 % O =1.2%			
-15	25		6D		25-27	24/1	6-4-2-2		Cobble at 24'		
-20	30		7D		30-32	24/5	1-1-2-3	w =38.9 % O =2.0%			
-25	35		1U		35-37	24/24		W _L =49 W _p =26 w =46.5 % S _v =2.05/0.31ksf S _v =1.86/0.31ksf			
			1V		37-37.5	6					
			1V		37.5-38	6					

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: **B-1005**



BORING LOG

CLIENT: Woodard & Curran
 PROJECT: Proposed IMT West Cold Storage Facility
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-1005**
 SHEET: 2 of 2
 PROJECT NO. 16-1314
 DATE START: 12/19/2017
 DATE FINISH: 12/19/2017

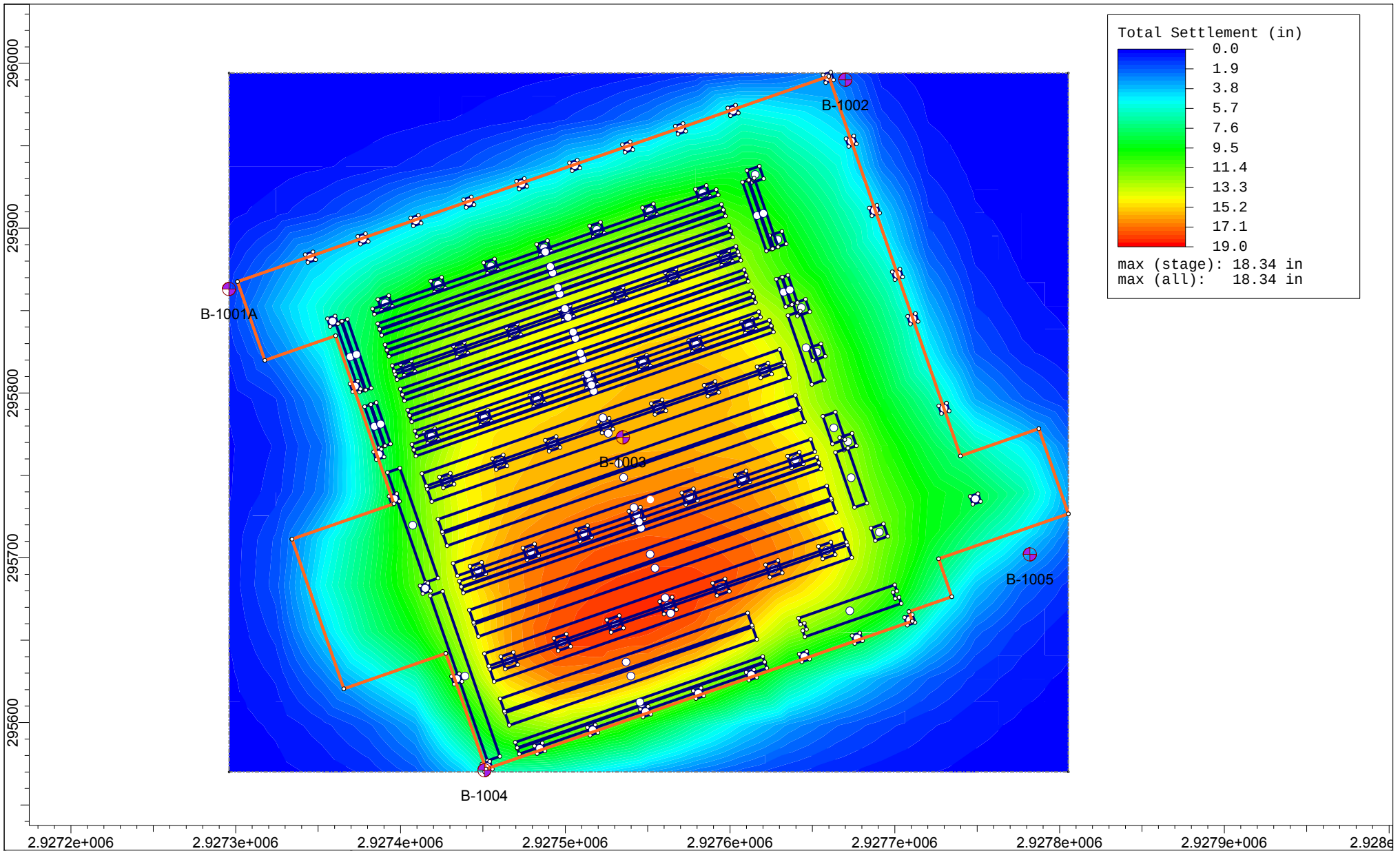
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
-30									Medium to stiff, gray silty CLAY with sand layers/seams		
-35	45		2U		45-47	24/22					
			2V		47-47.5	6					
			2V'		47.5-48	6			W _L =54 W _P =29 w=51.1 % S _v =2.17/0.43ksf S _v '=2.17/0.62ksf		
-40	50										
-45	55		3U		55-57	24/21					
			3V		57-57.5	6			W _L =43 W _P =24 w=41.2 % S _v =2.05/0.56ksf S _v '=2.17/0.50ksf		
			3V'		57.5-58	6					
-50	60		8D		60-62	24/18	4-3-4-5		w=23 %	59.0	Loose to medium dense, gray silty fine to coarse SAND with wood and pinecones
-55	65		9D		65-67	24/16	6-7-11-15				
-60	70		10D		70-72	24/10	5-5-5-2		w=21.1 %	69.0	Loose to medium dense, gray SAND, some silt, some gravel
-65	75									75.0	Medium dense, gray silty SAND
-70	80		11D		80-82	24/18	2-5-11-13		w=21 %		
										82.0	Bottom of Exploration at 82.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1005**



ATTACHMENT D: GRAPHICAL MODEL OF POTENTIAL TOTAL SETTLEMENT



SETTLE3D 4.014

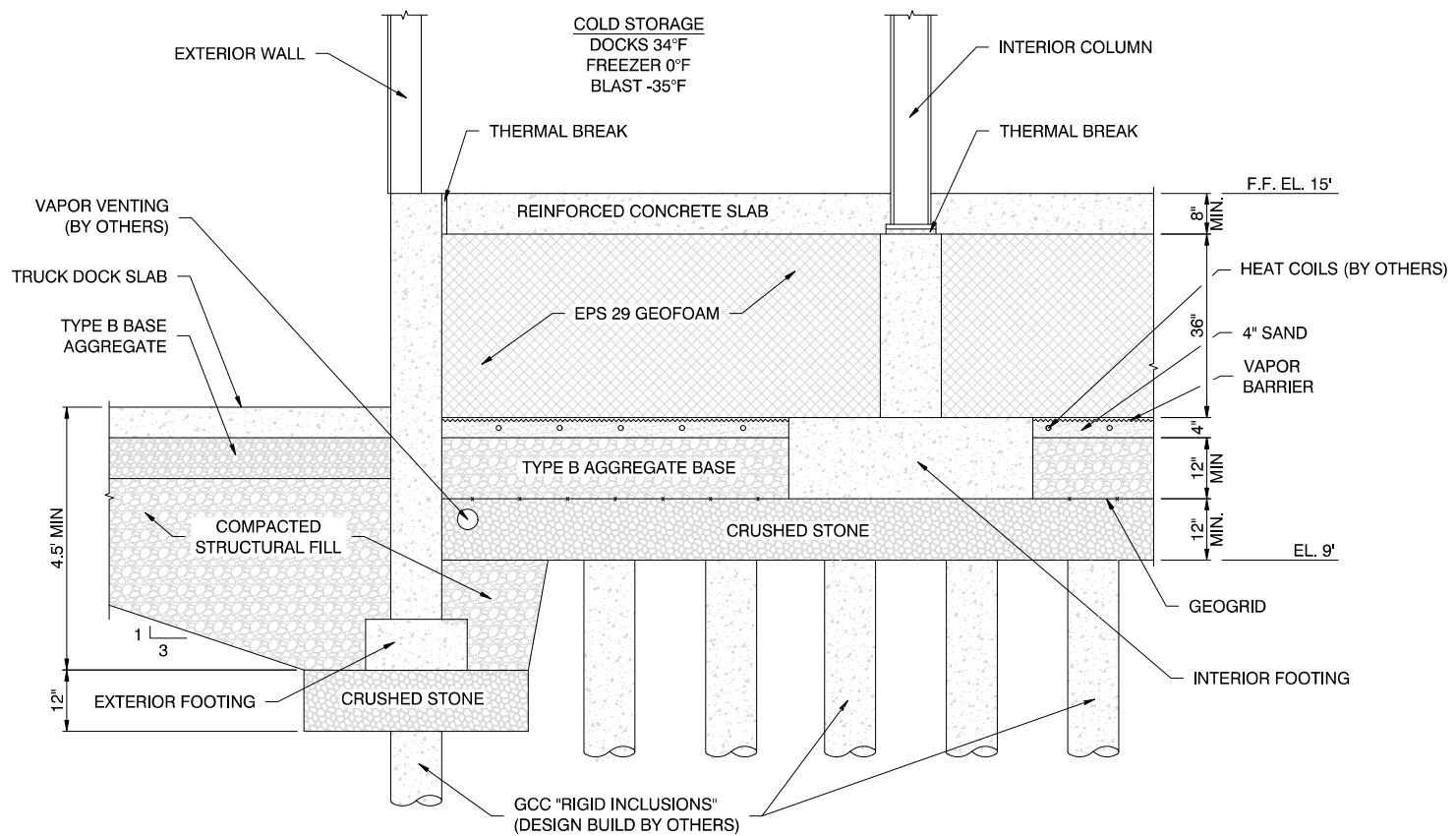
Project		Proposed IMT West Cold Storage Facility	
Analysis Description			
Drawn By		EJB	Company S.W. Cole Engineering
Date		1/26/2018, 1:38:56 PM	File Name IMT Site.s3z

S.W. Cole Engineering

IMT Site.s3z



ATTACHMENT E: FOUNDATION DETAIL SKETCHES

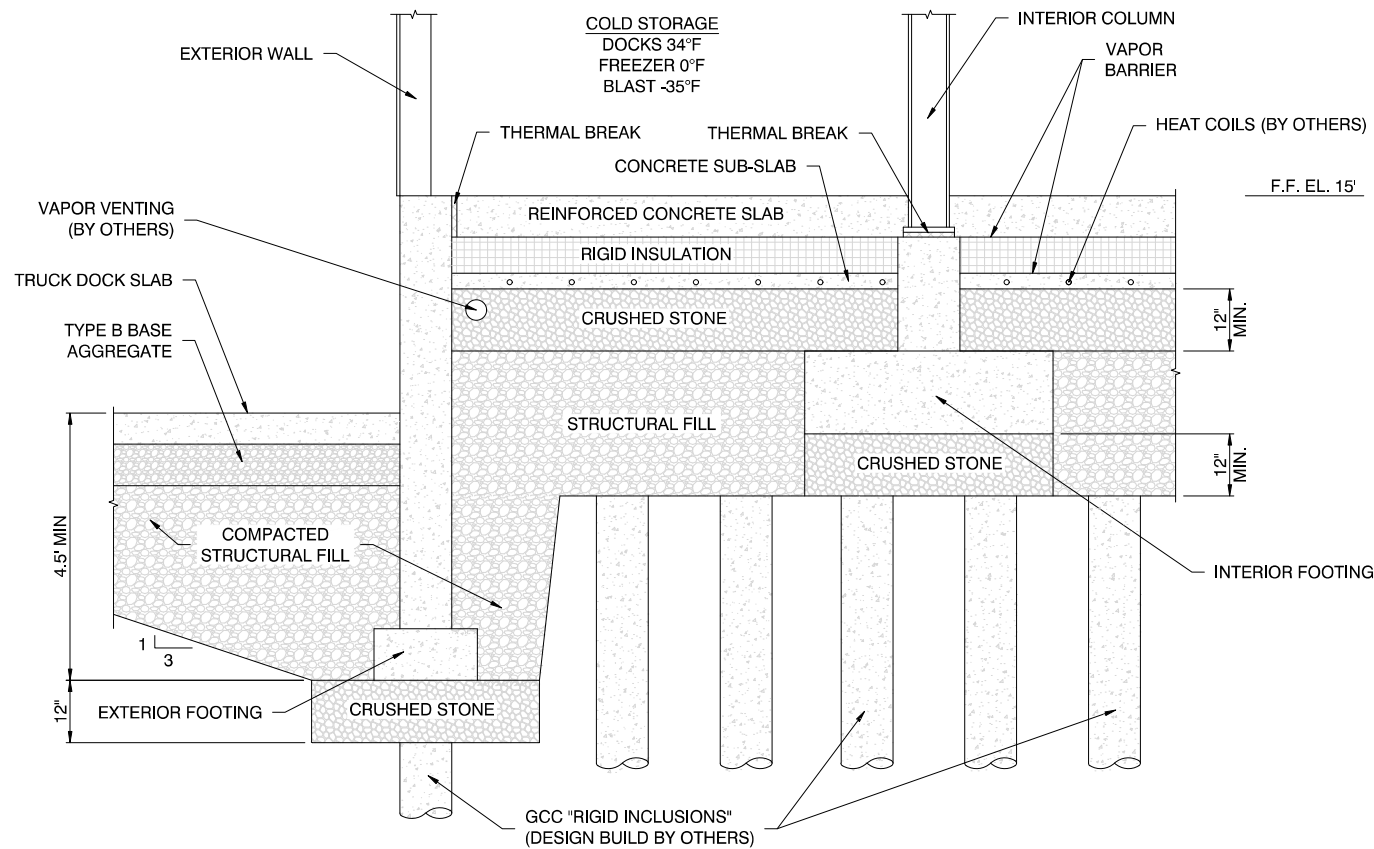


WOODARD & CURRAN

FOUNDATION DETAIL SKETCH

PROPOSED LOW TEMP WAREHOUSE
460 COMMERCIAL STREET
PORTLAND, MAINE

Job No.:	16-1314	Scale:	Not to Scale
Date :	02/14/2018	Sheet:	1

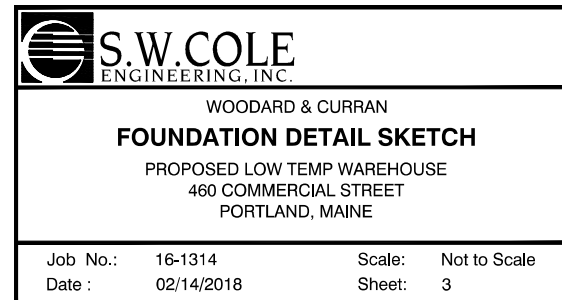


WOODARD & CURRAN

FOUNDATION DETAIL SKETCH

PROPOSED LOW TEMP WAREHOUSE
460 COMMERCIAL STREET
PORTLAND, MAINE

Job No.:	16-1314	Scale:	Not to Scale
Date :	02/14/2018	Sheet:	2





ATTACHMENT F: BUDGET ESTIMATE SUMMARIES



Option 1: Geopier GeoConcrete Columns (GCC)

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (GCC Option #1)

Recap - With Taxes and Insurance

Group 1: Divisions

Group 2: Major ItemCode Groups

Estimator : John Brockington

Project Size : 0 SQFT

Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
General Conditions									
Administrative requirements			116,626.46	12,459.08	402.00	8,953.99			138,442
Quality requirements					15,000.00				15,000
Temporary facilities and controls			742.50	10,529.75	267.00	4,190.97			15,730
Execution requirements				972.00	2,947.50				3,920
* Total General Conditions	1.00	LS	117,368.96	23,960.83	18,616.50	13,144.97		173,091.26	173,091
Sitework									
Site preparation			21,707.16	3,775.06		41,535.52			67,018
Earthwork			235,716.66	281,772.20	1,377,600.00	322,247.98			2,217,337
Foundations			90,946.31	1,056,940.00	3,508,934.76				4,656,821
* Total Sitework	1.00	LS	348,370.13	1,342,487.26	4,886,534.76	363,783.50		6,941,175.65	6,941,176
Total Gross Cost			465,739.09	1,366,448.09	4,905,151.26	376,928.47			7,114,267

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (GCC Option #1)

Detail - With Taxes and Insurance

Group 1: Divisions

Group 2: Major ItemCode Groups

Estimator : John Brockington

Project Size : 0 SQFT

Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
General Conditions									
Administrative requirements									
Mobilize/Demobilize	1.00	LS	5,062.46	896.00		8,953.99		14,912.45	14,912
Project Manager	6.00	WEEK	22,680.00					3,780.00	22,680
Project Superintendent	14.00	WEEK	49,140.00					3,510.00	49,140
Field Engineer	12.00	WEEK	29,808.00					2,484.00	29,808
Safety Engineer	4.00	WEEK	9,936.00					2,484.00	9,936
Permit (Allowance)	1.00	LS		9,345.79				9,345.79	9,346
Purchase drawings	1.00	LS		467.29				467.29	467
Travel expenses	14.00	WEEK		1,750.00				125.00	1,750
Progress photographs	3.00	MO			402.00			134.00	402
** Total Administrative requirements			116,626.46	12,459.08	402.00	8,953.99			138,442
Quality requirements									
Testing (Allowance)	1.00	LS			15,000.00			15,000.00	15,000
** Total Quality requirements					15,000.00				15,000
Temporary facilities and controls									
Job telephone	3.00	MO		1,050.00				350.00	1,050
Electrical energy costs	3.00	MO		1,350.00				450.00	1,350
Water usage costs	3.00	MO		300.00	267.00			189.00	567
Office trailer	3.00	MO		1,350.00				450.00	1,350
Storage trailer(s)	3.00	MO		375.00				125.00	375
Temporary toilets	3.00	MO		1,020.00				340.00	1,020
Water, ice and cups	3.00	MO		427.50				142.50	428
First aid supplies	3.00	MO		150.00				50.00	150
Safety supplies	3.00	MO		456.75				152.25	457
Office supplies	3.00	MO		250.50				83.50	251
Small tools	3.00	MO				520.86		173.62	521
Gasoline and lubricating oil	800.00	GALS		2,800.00				3.50	2,800
Automobile	1.50	MO				931.50		621.00	932
Pick-up truck	3.00	MO				2,738.61		912.87	2,739
Job sign	2.00	EACH	742.50	1,000.00				871.25	1,743
** Total Temporary facilities and controls			742.50	10,529.75	267.00	4,190.97			15,730
Execution requirements									
Layout supplies	12.00	WEEK		972.00				81.00	972
Rubbish removal	180.00	CUYD			2,947.50			16.38	2,948
** Total Execution requirements				972.00	2,947.50				3,920
* Total General Conditions	1.00	LS	117,368.96	23,960.83	18,616.50	13,144.97		173,091.26	173,091
Sitework									
Site preparation									
Erosion control	1,500.00	LNFT	2,768.50	1,045.80				2.54	3,814
Rough grading	2.54	ACRE	4,673.26	2,089.26		4,619.08		4,482.66	11,382
Dewatering pumps	2.00	EACH	5,272.87			33,000.00		19,136.43	38,273
Dewatering sumps	100.00	LNFT	8,992.53	640.00		3,916.44		135.49	13,549
** Total Site preparation			21,707.16	3,775.06		41,535.52			67,018
Earthwork									
Site cut to waste (Assumed Qty)	22,400.00	CUYD	53,218.14	23,793.28		79,836.42		7.00	156,848

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (GCC Option #1)

Detail - With Taxes and Insurance

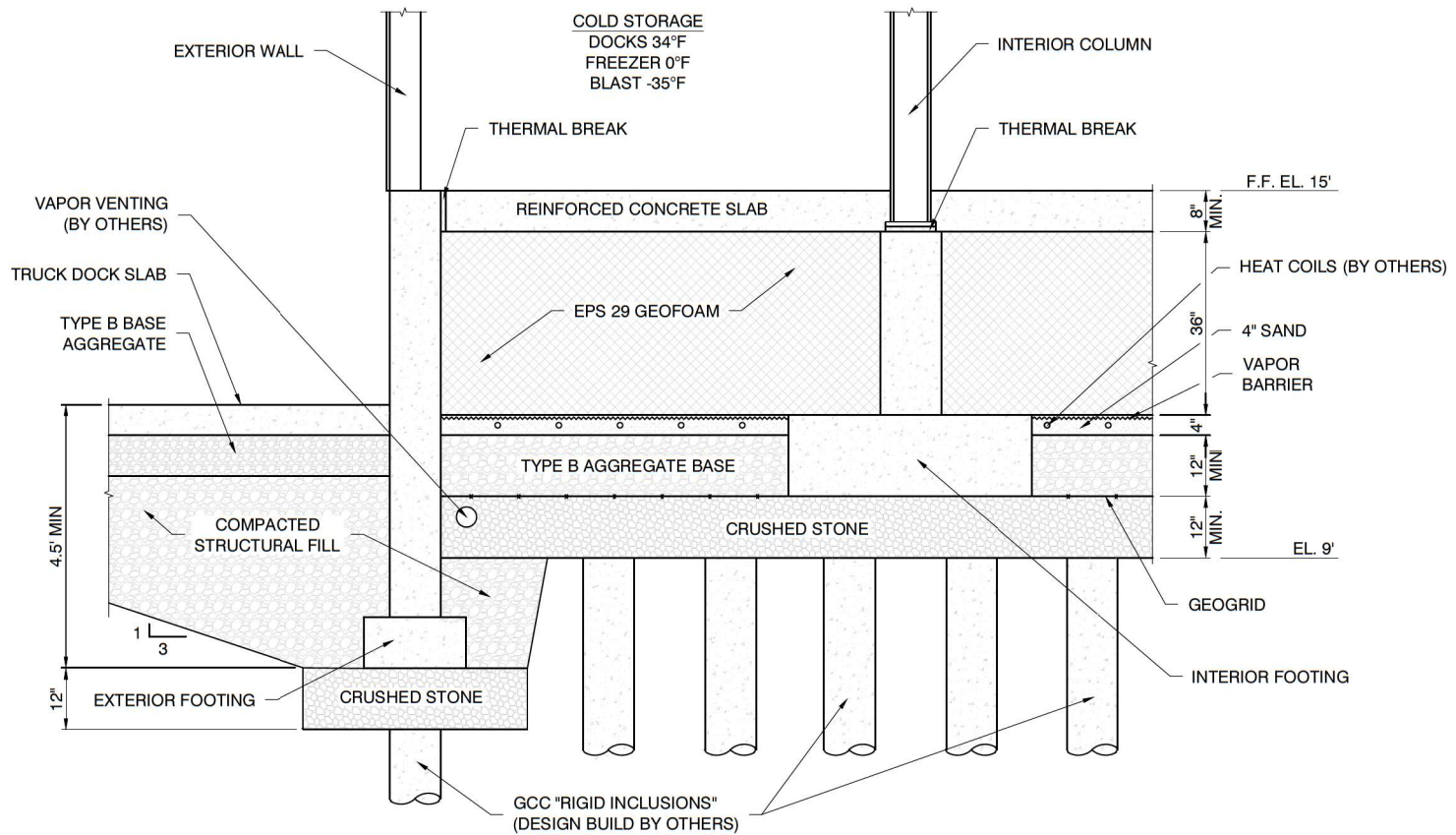
Group 1: Divisions

Group 2: Major ItemCode Groups

Estimator : John Brockington

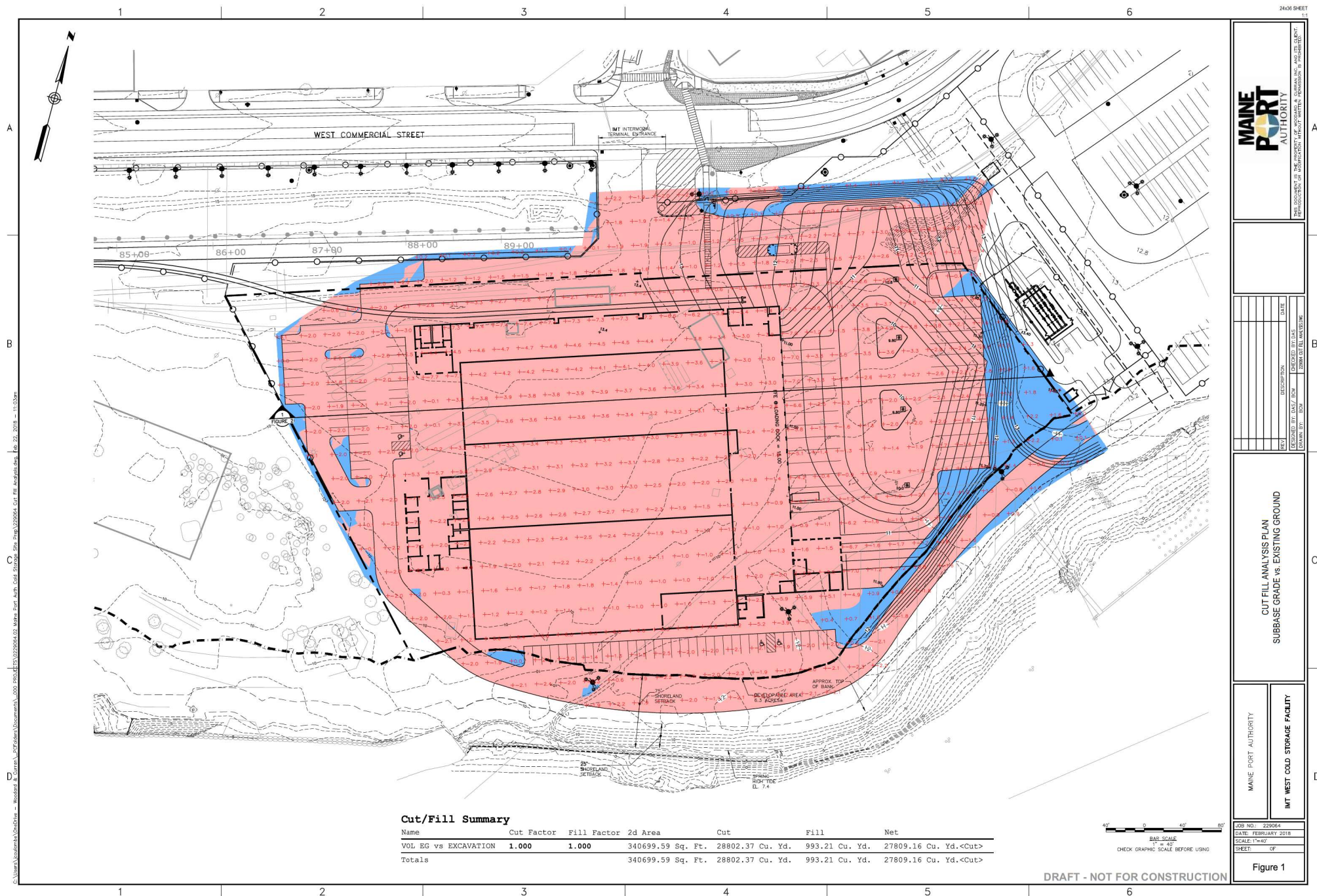
Project Size : 0 SQFT

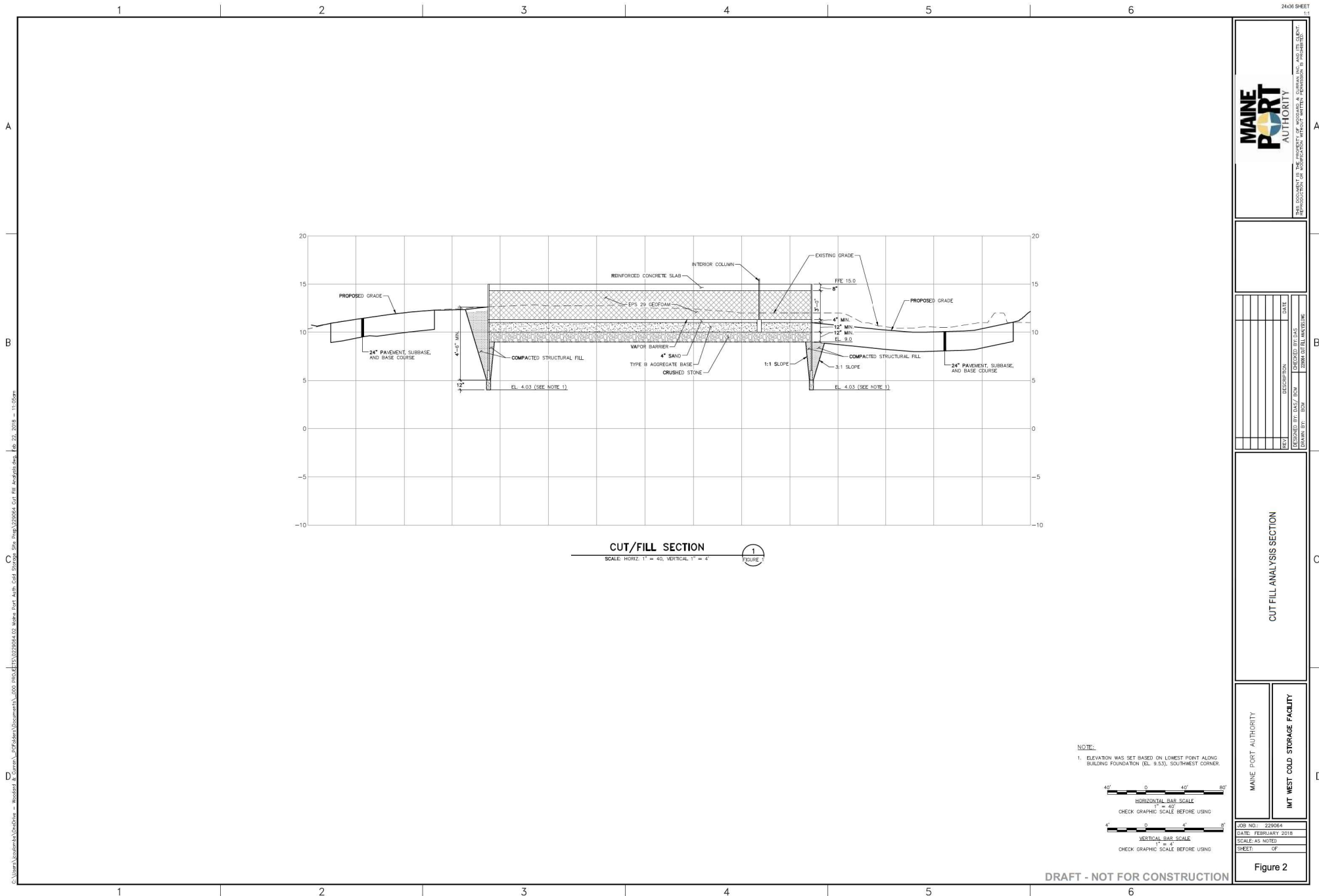
Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
Haul excavated material 8-10 miles (Assumed QTY)	33,600.00	TONS	63,852.60	11,299.68		112,935.06		5.60	188,087
Contaminated soil disposal	33,600.00	TONS			1,377,600.00			41.00	1,377,600
Compact subgrade	110,600.00	SQFT	28,493.33	12,741.12		28,171.31		0.63	69,406
Vapor barrier	121,660.00	SQFT	21,286.24	3,090.16				0.20	24,376
Sand fill layer, 4" depth	1,844.00	CUYD	7,376.36	12,357.93		13,453.49		18.00	33,188
Type B aggregate base layer, 12" depth	5,530.00	CUYD	25,286.84	72,387.15		46,119.79		26.00	143,794
Geogrid soil stabilization	12,290.00	SQYD	13,900.67	45,254.24		1,055.77		4.90	60,211
Crushed stone layer, 12" depth	5,120.00	CUYD	22,302.49	100,848.64		40,676.13		32.00	163,827
** Total Earthwork			235,716.66	281,772.20	1,377,600.00	322,247.98			2,217,337
Foundations									
Geopier GCC Ground Improvement	118,000.00	SQFT			3,400,004.80			28.81	3,400,005
Geofoam, EPS 29	12,290.00	CUYD	90,946.31	1,056,940.00	108,929.96			102.26	1,256,816
** Total Foundations			90,946.31	1,056,940.00	3,508,934.76				4,656,821
* Total Sitework	1.00	LS	348,370.13	1,342,487.26	4,886,534.76	363,783.50		6,941,175.65	6,941,176
Total Gross Cost			465,739.09	1,366,448.09	4,905,151.26	376,928.47			7,114,267



 S.W. COLE ENGINEERING, INC.		
WOODARD & CURRAN FOUNDATION DETAIL SKETCH PROPOSED LOW TEMP WAREHOUSE 460 COMMERCIAL STREET PORTLAND, MAINE		
Job No.:	16-1314	Scale: Not to Scale
Date :	02/14/2018	Sheet: 2

R:\2016\16-1314\CAD\Drawings\16-1314 Detail.dwg, 2/14/2018 3:54:03 PM, 1:1, CEM, S. W. Cole Engineering, Inc.







Option 2: Geopier GeoConcrete Columns (GCC)

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (GCC Option #2)

Recap - With Taxes and Insurance

Group 1: Divisions

Group 2: Major ItemCode Groups

Estimator : John Brockington

Project Size : 0 SQFT

Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
General Conditions									
Administrative requirements			116,626.46	12,459.08	402.00	8,953.99			138,442
Quality requirements					15,000.00				15,000
Temporary facilities and controls			742.50	10,529.75	267.00	4,190.97			15,730
Execution requirements				972.00	2,947.50				3,920
* Total General Conditions	1.00	LS	117,368.96	23,960.83	18,616.50	13,144.97		173,091.26	173,091
Sitework									
Site preparation			21,707.16	3,775.06		41,535.52			67,018
Earthwork			211,675.35	274,565.61	1,094,700.00	282,660.98			1,863,602
Foundations					3,133,000.00				3,133,000
* Total Sitework	1.00	LS	233,382.51	278,340.67	4,227,700.00	324,196.50		5,063,619.68	5,063,620
Total Gross Cost			350,751.47	302,301.50	4,246,316.50	337,341.47			5,236,711

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (GCC Option #2)

Detail - With Taxes and Insurance

Group 1: Divisions

Group 2: Major ItemCode Groups

Estimator : John Brockington

Project Size : 0 SQFT

Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
General Conditions									
Administrative requirements									
Mobilize/Demobilize	1.00	LS	5,062.46	896.00		8,953.99		14,912.45	14,912
Project Manager	6.00	WEEK	22,680.00					3,780.00	22,680
Project Superintendent	14.00	WEEK	49,140.00					3,510.00	49,140
Field Engineer	12.00	WEEK	29,808.00					2,484.00	29,808
Safety Engineer	4.00	WEEK	9,936.00					2,484.00	9,936
Permit (Allowance)	1.00	LS		9,345.79				9,345.79	9,346
Purchase drawings	1.00	LS		467.29				467.29	467
Travel expenses	14.00	WEEK		1,750.00				125.00	1,750
Progress photographs	3.00	MO			402.00			134.00	402
** Total Administrative requirements			116,626.46	12,459.08	402.00	8,953.99			138,442
Quality requirements									
Testing (Allowance)	1.00	LS			15,000.00			15,000.00	15,000
** Total Quality requirements					15,000.00				15,000
Temporary facilities and controls									
Job telephone	3.00	MO		1,050.00				350.00	1,050
Electrical energy costs	3.00	MO		1,350.00				450.00	1,350
Water usage costs	3.00	MO		300.00	267.00			189.00	567
Office trailer	3.00	MO		1,350.00				450.00	1,350
Storage trailer(s)	3.00	MO		375.00				125.00	375
Temporary toilets	3.00	MO		1,020.00				340.00	1,020
Water, ice and cups	3.00	MO		427.50				142.50	428
First aid supplies	3.00	MO		150.00				50.00	150
Safety supplies	3.00	MO		456.75				152.25	457
Office supplies	3.00	MO		250.50				83.50	251
Small tools	3.00	MO				520.86		173.62	521
Gasoline and lubricating oil	800.00	GALS		2,800.00				3.50	2,800
Automobile	1.50	MO				931.50		621.00	932
Pick-up truck	3.00	MO				2,738.61		912.87	2,739
Job sign	2.00	EACH	742.50	1,000.00				871.25	1,743
** Total Temporary facilities and controls			742.50	10,529.75	267.00	4,190.97			15,730
Execution requirements									
Layout supplies	12.00	WEEK		972.00				81.00	972
Rubbish removal	180.00	CUYD			2,947.50			16.38	2,948
** Total Execution requirements				972.00	2,947.50				3,920
* Total General Conditions	1.00	LS	117,368.96	23,960.83	18,616.50	13,144.97		173,091.26	173,091
Sitework									
Site preparation									
Erosion control	1,500.00	LNFT	2,768.50	1,045.80				2.54	3,814
Rough grading	2.54	ACRE	4,673.26	2,089.26		4,619.08		4,482.66	11,382
Dewatering pumps	2.00	EACH	5,272.87			33,000.00		19,136.43	38,273
Dewatering sumps	100.00	LNFT	8,992.53	640.00		3,916.44		135.49	13,549
** Total Site preparation			21,707.16	3,775.06		41,535.52			67,018
Earthwork									
Site cut to waste (Assumed Qty)	17,800.00	CUYD	42,289.42	18,907.16		63,441.44		7.00	124,638

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (GCC Option #2)

Detail - With Taxes and Insurance

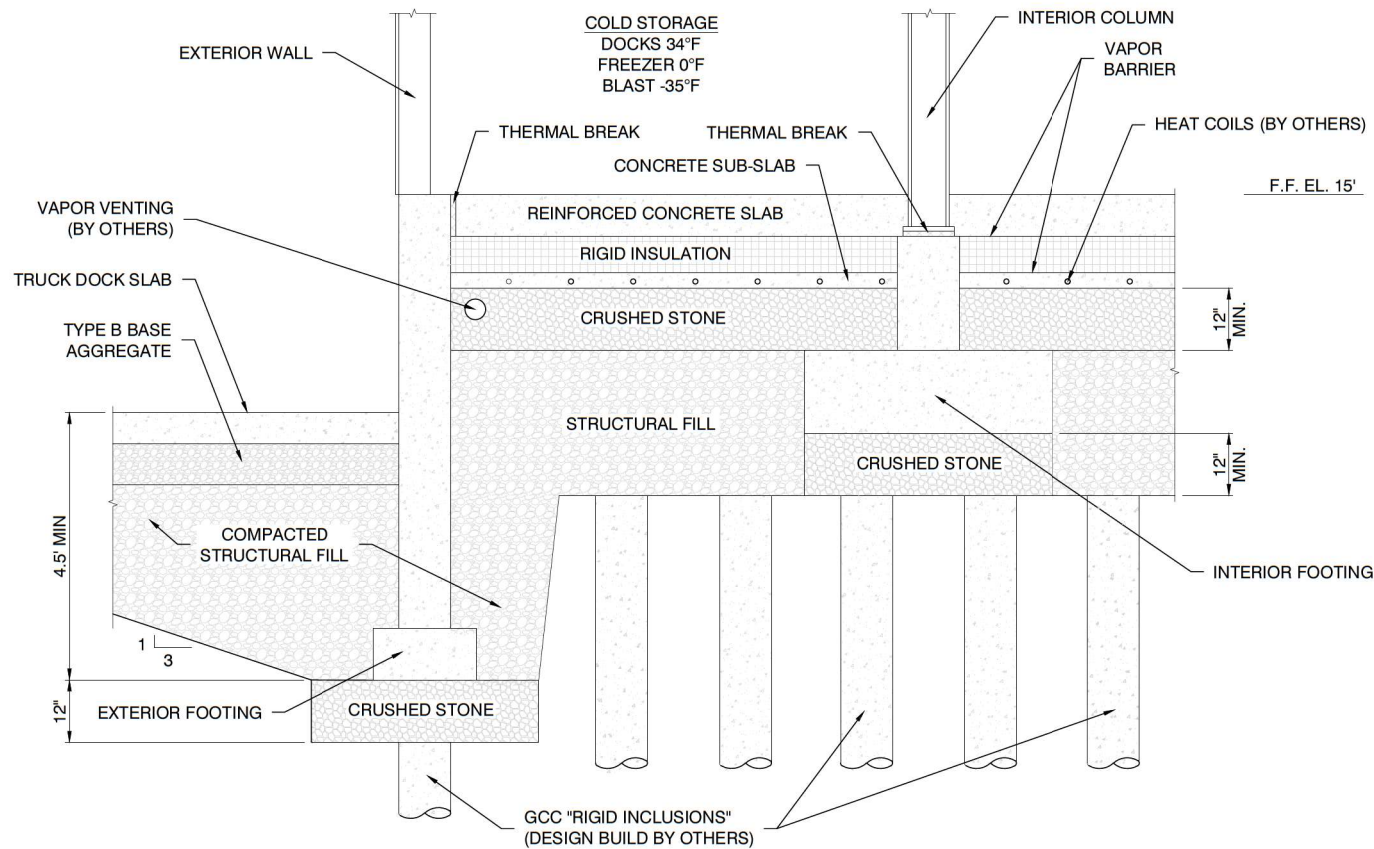
Group 1: Divisions

Group 2: Major ItemCode Groups

Estimator : John Brockington

Project Size : 0 SQFT

Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
Haul excavated material 8-10 miles (Assumed QTY)	26,700.00	TONS	50,740.01	8,979.21		89,743.04		5.60	149,462
Contaminated soil disposal	26,700.00	TONS			1,094,700.00			41.00	1,094,700
Compact subgrade	110,600.00	SQFT	28,493.33	12,741.12		28,171.31		0.63	69,406
Vapor barrier	121,660.00	SQFT	21,286.24	3,090.16				0.20	24,376
Sand fill layer, 4" depth	1,844.00	CUYD	7,376.36	12,357.93		13,453.49		18.00	33,188
Type B aggregate base layer, 12" depth	5,530.00	CUYD	25,286.84	72,387.15		46,119.79		26.00	143,794
Geogrid soil stabilization	12,290.00	SQYD	13,900.67	45,254.24		1,055.77		4.90	60,211
Crushed stone layer, 12" depth	5,120.00	CUYD	22,302.49	100,848.64		40,676.13		32.00	163,827
** Total Earthwork			211,675.35	274,565.61	1,094,700.00	282,660.98			1,863,602
Foundations									
Geopier GCC Rigid Inclusions, 16" dia at 7' oc	2,000.00	EACH			3,133,000.00			1,566.50	3,133,000
Geofoam, EPS 29 (DELETED)		CUYD						102.26	
** Total Foundations					3,133,000.00				3,133,000
* Total Sitework	1.00	LS	233,382.51	278,340.67	4,227,700.00	324,196.50		5,063,619.68	5,063,620
Total Gross Cost			350,751.47	302,301.50	4,246,316.50	337,341.47			5,236,711



WOODARD & CURRAN

FOUNDATION DETAIL SKETCH

PROPOSED LOW TEMP WAREHOUSE
460 COMMERCIAL STREET
PORTLAND, MAINE

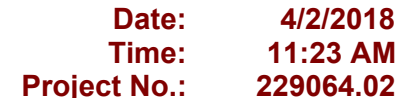
Job No.: 16-1314
Date : 02/14/2018

Scale: Not to Scale
Sheet: 3



Option 3a: Pipe Piles

Portland, Maine 04102

[illegible]

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (Pipe Pile Option #3a)

Recap - With Taxes and Insurance

Group 1: Divisions

Group 2: Major ItemCode Groups

Estimator : John Brockington

Project Size : 0 SQFT

Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
General Conditions									
Administrative requirements			116,626.46	12,459.08	402.00	8,953.99			138,442
Quality requirements					15,000.00				15,000
Temporary facilities and controls			742.50	10,529.75	267.00	4,190.97			15,730
Execution requirements				972.00	2,947.50				3,920
* Total General Conditions	1.00	LS	117,368.96	23,960.83	18,616.50	13,144.97		173,091.26	173,091
Sitework									
Site preparation			21,707.16	3,775.06		41,535.52			67,018
Earthwork			84,102.71	120,283.22	141,450.00	88,640.94			434,477
Foundations					3,280,000.00				3,280,000
* Total Sitework	1.00	LS	105,809.87	124,058.28	3,421,450.00	130,176.47		3,781,494.61	3,781,495
Concrete									
Formwork			188,228.26	15,532.53					203,761
Concrete reinforcing			338,129.45	244,004.45					582,134
Cast in place concrete			131,980.30	300,078.88		51,835.51			483,895
* Total Concrete	1.00	LS	658,338.00	559,615.85		51,835.51		1,269,789.36	1,269,789
Total Gross Cost			881,516.84	707,634.96	3,440,066.50	195,156.94			5,224,375

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (Pipe Pile Option #3a)

Detail - With Taxes and Insurance

Group 1: Divisions

Group 2: Major ItemCode Groups

Estimator : John Brockington

Project Size : 0 SQFT

Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
General Conditions									
Administrative requirements									
Mobilize/Demobilize	1.00	LS	5,062.46	896.00		8,953.99		14,912.45	14,912
Project Manager	6.00	WEEK	22,680.00					3,780.00	22,680
Project Superintendent	14.00	WEEK	49,140.00					3,510.00	49,140
Field Engineer	12.00	WEEK	29,808.00					2,484.00	29,808
Safety Engineer	4.00	WEEK	9,936.00					2,484.00	9,936
Permit (Allowance)	1.00	LS		9,345.79				9,345.79	9,346
Purchase drawings	1.00	LS		467.29				467.29	467
Travel expenses	14.00	WEEK		1,750.00				125.00	1,750
Progress photographs	3.00	MO			402.00			134.00	402
** Total Administrative requirements			116,626.46	12,459.08	402.00	8,953.99			138,442
Quality requirements									
Testing (Allowance)	1.00	LS			15,000.00			15,000.00	15,000
** Total Quality requirements					15,000.00				15,000
Temporary facilities and controls									
Job telephone	3.00	MO		1,050.00				350.00	1,050
Electrical energy costs	3.00	MO		1,350.00				450.00	1,350
Water usage costs	3.00	MO		300.00	267.00			189.00	567
Office trailer	3.00	MO		1,350.00				450.00	1,350
Storage trailer(s)	3.00	MO		375.00				125.00	375
Temporary toilets	3.00	MO		1,020.00				340.00	1,020
Water, ice and cups	3.00	MO		427.50				142.50	428
First aid supplies	3.00	MO		150.00				50.00	150
Safety supplies	3.00	MO		456.75				152.25	457
Office supplies	3.00	MO		250.50				83.50	251
Small tools	3.00	MO				520.86		173.62	521
Gasoline and lubricating oil	800.00	GALS		2,800.00				3.50	2,800
Automobile	1.50	MO				931.50		621.00	932
Pick-up truck	3.00	MO				2,738.61		912.87	2,739
Job sign	2.00	EACH	742.50	1,000.00				871.25	1,743
** Total Temporary facilities and controls			742.50	10,529.75	267.00	4,190.97			15,730
Execution requirements									
Layout supplies	12.00	WEEK		972.00				81.00	972
Rubbish removal	180.00	CUYD			2,947.50			16.38	2,948
** Total Execution requirements				972.00	2,947.50				3,920
* Total General Conditions	1.00	LS	117,368.96	23,960.83	18,616.50	13,144.97		173,091.26	173,091
Sitework									
Site preparation									
Erosion control	1,500.00	LNFT	2,768.50	1,045.80				2.54	3,814
Rough grading	2.54	ACRE	4,673.26	2,089.26		4,619.08		4,482.66	11,382
Dewatering pumps	2.00	EACH	5,272.87			33,000.00		19,136.43	38,273
Dewatering sumps	100.00	LNFT	8,992.53	640.00		3,916.44		135.49	13,549
** Total Site preparation			21,707.16	3,775.06		41,535.52			67,018
Earthwork									
Site cut to waste (Assumed Qty)	2,300.00	CUYD	5,464.36	2,443.06		8,197.49		7.00	16,105

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (Pipe Pile Option #3a)

Detail - With Taxes and Insurance

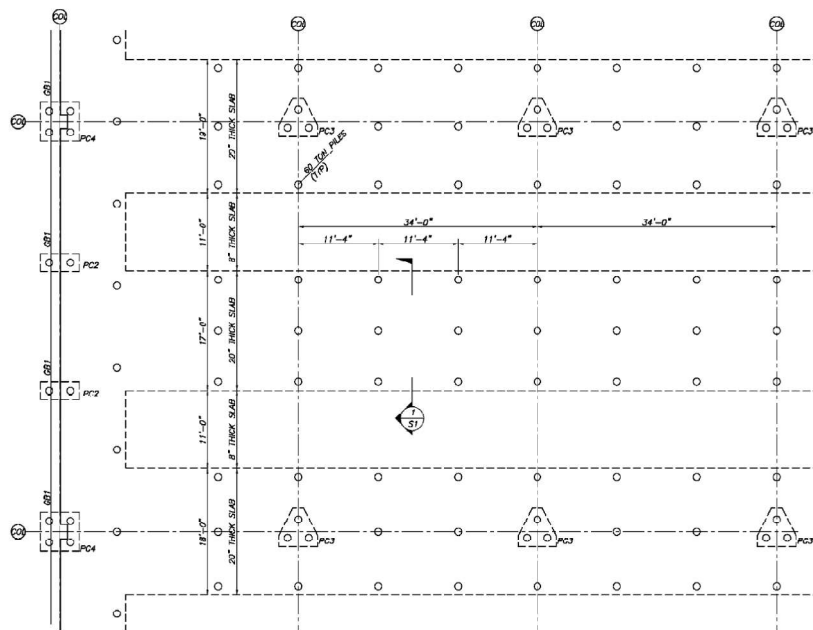
Group 1: Divisions

Group 2: Major ItemCode Groups

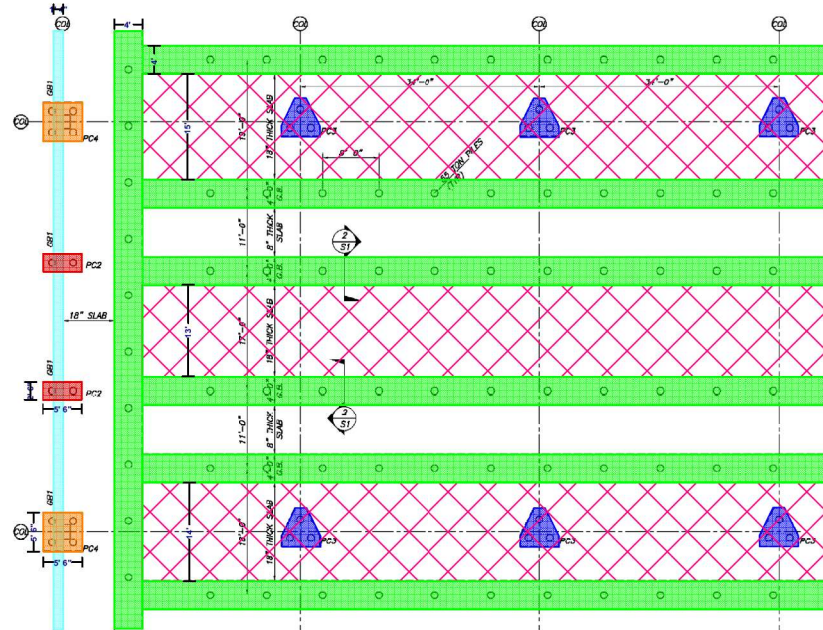
Estimator : John Brockington

Project Size : 0 SQFT

Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
Haul excavated material 8-10 miles (Assumed QTY)	3,450.00	TONS	6,556.29	1,160.24		11,596.01		5.60	19,313
Contaminated soil disposal	3,450.00	TONS			141,450.00			41.00	141,450
Compact subgrade	110,600.00	SQFT	28,493.33	12,741.12		28,171.31		0.63	69,406
Vapor barrier	121,660.00	SQFT	21,286.24	3,090.16				0.20	24,376
Sand fill layer, 4" depth (DELETED)		CUYD						18.00	
Type B aggregate base layer, 12" depth (DELETED)		CUYD						26.00	
Geogrid soil stabilization (DELETED)		SQYD						4.90	
Crushed stone layer, 12" depth	5,120.00	CUYD	22,302.49	100,848.64		40,676.13		32.00	163,827
** Total Earthwork			84,102.71	120,283.22	141,450.00	88,640.94			434,477
Foundations									
Pipe Piles, 14" dia concrete filled, 70' ave. depth	840.00	EACH			3,280,000.00			3,904.76	3,280,000
Geofoam, EPS 29 (DELETED)		CUYD						102.26	
** Total Foundations					3,280,000.00				3,280,000
* Total Sitework	1.00	LS	105,809.87	124,058.28	3,421,450.00	130,176.47		3,781,494.61	3,781,495
Concrete									
Formwork									
Pile cap edge forms	3,957.00	SQFT	49,982.07	1,708.24				13.06	51,690
Grade beam form 0' to 2' deep	19,800.00	SQFT	124,039.97	12,264.12				6.88	136,304
Grade beam form hardware	9,900.00	SQFT		1,013.76				0.10	1,014
Form releasing agent	23,757.00	SQFT	14,206.21	546.41				0.62	14,753
** Total Formwork			188,228.26	15,532.53					203,761
Concrete reinforcing									
SOG rebar	67.82	TONS	114,128.46	81,378.36				2,882.93	195,507
Pile cap rebar	14.11	TONS	23,326.01	16,934.83				2,852.88	40,261
Grade beam rebar	121.41	TONS	200,674.97	145,691.26				2,852.88	346,366
** Total Concrete reinforcing			338,129.45	244,004.45					582,134
Cast in place concrete									
** Concrete in pile caps and pier caps **		****							
4000 psi direct	177.90	CUYD	5,129.98	18,323.91		105.87		132.43	23,560
Concrete in grade beams		****							
4000 psi direct	1,299.38	CUYD	42,821.42	133,835.63		883.70		136.64	177,541
Concrete in slab on grade		****							
4000 psi w/pump	1,393.52	CUYD	51,962.06	144,748.53		29,986.54		162.68	226,697
* No. of pile caps *	139.00	EACH							
* Grade beam length *	6,600.00	LNFT							
* SOG area *	43,000.00	SQFT							
Finish footing concrete top surface	25,324.75	SQFT	4,442.72	154.48		2,888.47		0.30	7,486
Point and patch	19,800.00	SQFT	4,838.43	421.74		3,147.72		0.42	8,408
Protect and cure vertical surfaces	23,757.00	SQFT	6,089.51	783.98		3,961.21		0.46	10,835
Protect and cure horizontal surfaces	68,324.75	SQFT	16,696.18	1,810.61		10,862.00		0.43	29,369
** Total Cast in place concrete			131,980.30	300,078.88		51,835.51			483,895
* Total Concrete	1.00	LS	658,338.00	559,615.85		51,835.51		1,269,789.36	1,269,789
Total Gross Cost			881,516.84	707,634.96	3,440,066.50	195,156.94			5,224,375



PARTIAL PLAN - OPTION 1
1/8"=1'-0"



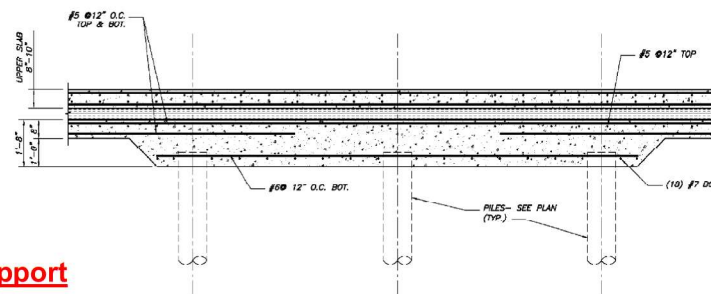
PARTIAL PLAN - OPTION 2
1/8"=1'-0"

CONCRETE NOTES

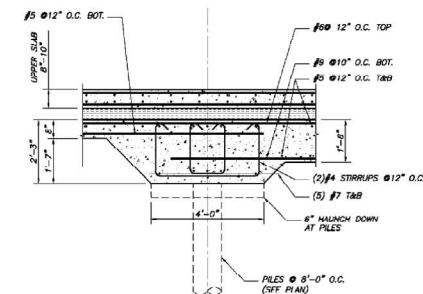
1. CONCRETE WORK SHALL CONFORM TO THE ACI "MANUAL OF CONCRETE PRACTICE," INCLUDING BUT NOT LIMITED TO ACI 318, INCLUDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE."
2. ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. ADDITIONAL CONCRETE MIX PERFORMANCE DATA INCLUDING MIX CONTENT, WATER-CEMENT RATIO, AGGREGATE SIZE, SLUMP, ETC. HAS BEEN INCLUDED IN THE PROJECT SPECIFICATIONS. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60 DEFORMED BARS AND SHALL BE DETAIL-FABRICATED, AND PLACED IN ACCORDANCE WITH ACI 318.
4. REINFORCEMENT SHALL BE CONTINUOUS AROUND CORNERS AND AT INTERSECTIONS. PROVIDE LAPPED BARS AT NECESSARY SPLICES OR HOOKED BARS AT DISCONTINUOUS ENDS. SEE SCHEDULE FOR REQUIRED REBAR LAP SPLICE LENGTHS.
5. SLAB THICKNESSES INDICATED ON THE DRAWINGS ARE MINIMUMS. PROVIDE SUFFICIENT CONCRETE TO ALLOW FOR STRUCTURAL DEFLECTION, SURROUNDING FLUCTUATIONS, AND TO OBTAIN THE TO ACCOUNT ELEVATION AT THE FLATNESS AND LEVELNESS INDICATED.

Option 2 Concrete Support

- 8 - Pile Cap (PC2) - 46 Total QTY
- 9 - Pile Cap (PC3) - 48 Total QTY
- 10 - Pile Cap (PC4) - 45 Total QTY
- 11 - Grade Beam, 1'-7" depth - 5,100 Total LF
- 12 - Thickened Slab, 10" depth - 43,000 Total SF
- 13 - Grade Beam (GB1) - 1,500 Total LF

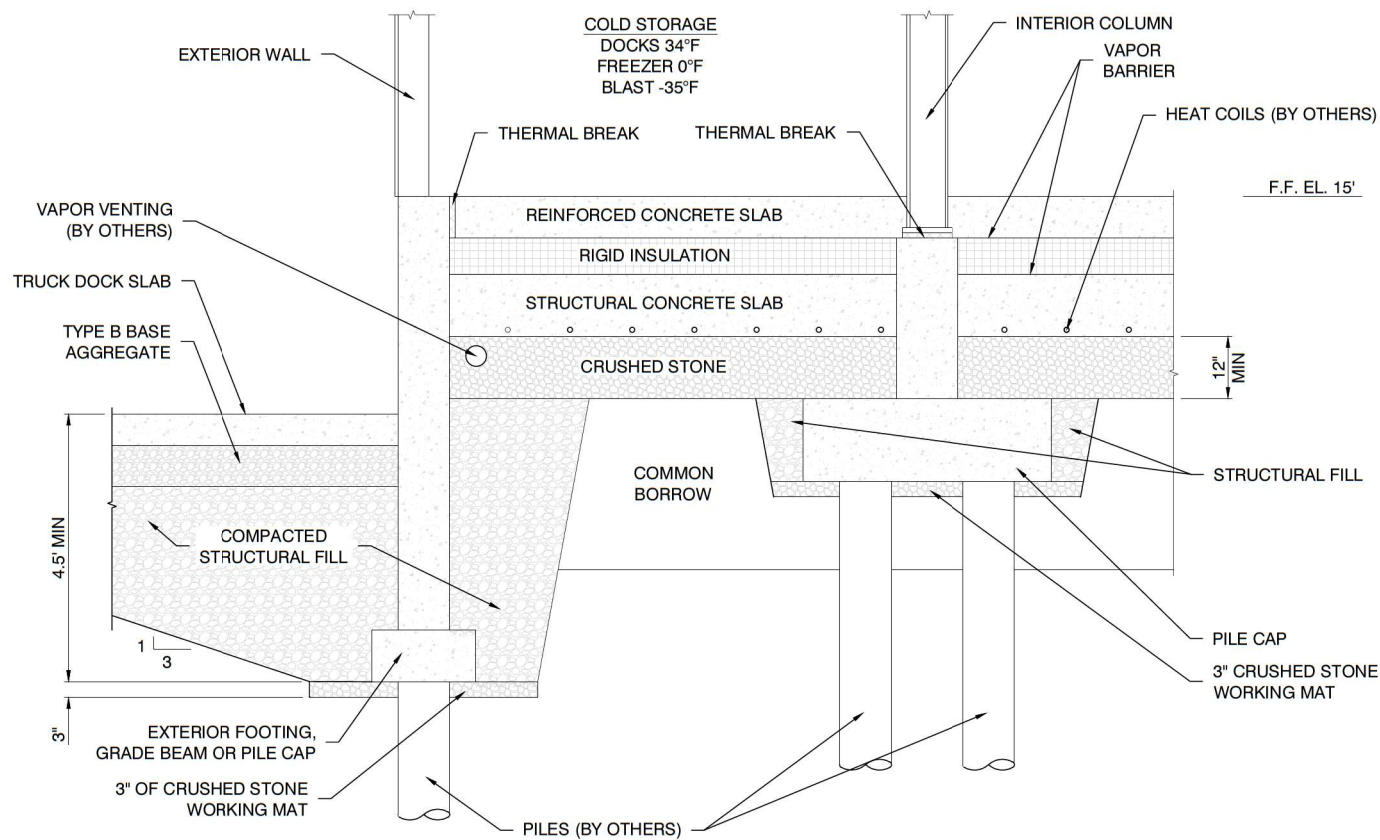


SECTION 1
1/2"=1'-0"



SECTION 2
1/2"=1'-0"

NOT FOR CONSTRUCTION
PRELIMINARY
THESE DWGS ARE NOT COMPLETE.
DESIGN IS STILL IN PROGRESS.
CONTRACTOR SHALL CARRY
APPROPRIATE CONTINGENCY.



WOODARD & CURRAN

FOUNDATION DETAIL SKETCH

PROPOSED LOW TEMP WAREHOUSE
460 COMMERCIAL STREET
PORTLAND, MAINE

Job No.: 16-1314
Date : 02/14/2018

Scale: Not to Scale
Sheet: 4



Option 3b: H-Piles

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (H-Pile Option #3b)

Recap - With Taxes and Insurance

Group 1: Divisions

Group 2: Major ItemCode Groups

Estimator : John Brockington

Project Size : 0 SQFT

Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
General Conditions									
Administrative requirements			116,626.46	12,859.08		8,953.99			138,440
Quality requirements					15,000.00				15,000
Temporary facilities and controls			742.50	10,729.75		4,190.97			15,663
Execution requirements				972.00	3,000.01				3,972
* Total General Conditions	1.00	LS	117,368.96	24,560.83	18,000.01	13,144.97		173,074.77	173,075
Sitework									
Site preparation			21,707.16	3,775.06		41,535.52			67,018
Earthwork			84,102.71	120,283.22	141,450.00	88,640.94			434,477
Foundations					3,045,000.00				3,045,000
* Total Sitework	1.00	LS	105,809.87	124,058.28	3,186,450.00	130,176.47		3,546,494.62	3,546,495
Concrete									
Formwork			188,228.26	15,532.53					203,761
Concrete reinforcing			338,129.45	244,004.45					582,134
Cast in place concrete			131,980.30	300,078.88		51,835.51			483,895
* Total Concrete	1.00	LS	658,338.00	559,615.85		51,835.51		1,269,789.36	1,269,789
Total Gross Cost			881,516.84	708,234.96	3,204,450.01	195,156.94			4,989,359

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (H-Pile Option #3b)

Detail - With Taxes and Insurance

Group 1: Divisions

Group 2: Major ItemCode Groups

Estimator : John Brockington

Project Size : 0 SQFT

Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
General Conditions									
Administrative requirements									
Mobilize/Demobilize	1.00	LS	5,062.46	896.00		8,953.99		14,912.45	14,912
Project Manager	6.00	WEEK	22,680.00					3,780.00	22,680
Project Superintendent	14.00	WEEK	49,140.00					3,510.00	49,140
Field Engineer	12.00	WEEK	29,808.00					2,484.00	29,808
Safety Engineer	4.00	WEEK	9,936.00					2,484.00	9,936
Permit (Allowance)	1.00	LS		9,345.79				9,345.79	9,346
Purchase drawings	1.00	LS		467.29				467.29	467
Travel expenses	14.00	WEEK		1,750.00				125.00	1,750
Progress photographs	3.00	MO		400.00				133.33	400
** Total Administrative requirements			116,626.46	12,859.08		8,953.99			138,440
Quality requirements									
Testing (Allowance)	1.00	LS			15,000.00			15,000.00	15,000
** Total Quality requirements					15,000.00				15,000
Temporary facilities and controls									
Job telephone	3.00	MO		1,050.00				350.00	1,050
Electrical energy costs	3.00	MO		1,350.00				450.00	1,350
Water usage costs	3.00	MO		500.00				166.67	500
Office trailer	3.00	MO		1,350.00				450.00	1,350
Storage trailer(s)	3.00	MO		375.00				125.00	375
Temporary toilets	3.00	MO		1,020.00				340.00	1,020
Water, ice and cups	3.00	MO		427.50				142.50	428
First aid supplies	3.00	MO		150.00				50.00	150
Safety supplies	3.00	MO		456.75				152.25	457
Office supplies	3.00	MO		250.50				83.50	251
Small tools	3.00	MO				520.86		173.62	521
Gasoline and lubricating oil	800.00	GALS		2,800.00				3.50	2,800
Automobile	1.50	MO				931.50		621.00	932
Pick-up truck	3.00	MO				2,738.61		912.87	2,739
Job sign	2.00	EACH	742.50	1,000.00				871.25	1,743
** Total Temporary facilities and controls			742.50	10,729.75		4,190.97			15,663
Execution requirements									
Layout supplies	12.00	WEEK		972.00				81.00	972
Rubbish removal	180.00	CUYD			3,000.01			16.67	3,000
** Total Execution requirements				972.00	3,000.01				3,972
* Total General Conditions	1.00	LS	117,368.96	24,560.83	18,000.01	13,144.97		173,074.77	173,075
Sitework									
Site preparation									
Erosion control	1,500.00	LNFT	2,768.50	1,045.80				2.54	3,814
Rough grading	2.54	ACRE	4,673.26	2,089.26		4,619.08		4,482.66	11,382
Dewatering pumps	2.00	EACH	5,272.87			33,000.00		19,136.43	38,273
Dewatering sumps	100.00	LNFT	8,992.53	640.00		3,916.44		135.49	13,549
** Total Site preparation			21,707.16	3,775.06		41,535.52			67,018
Earthwork									
Site cut to waste (Assumed Qty)	2,300.00	CUYD	5,464.36	2,443.06		8,197.49		7.00	16,105

Estimate Detail - Maine Port Authority - Cold Storage Site Preparation (H-Pile Option #3b)

Detail - With Taxes and Insurance

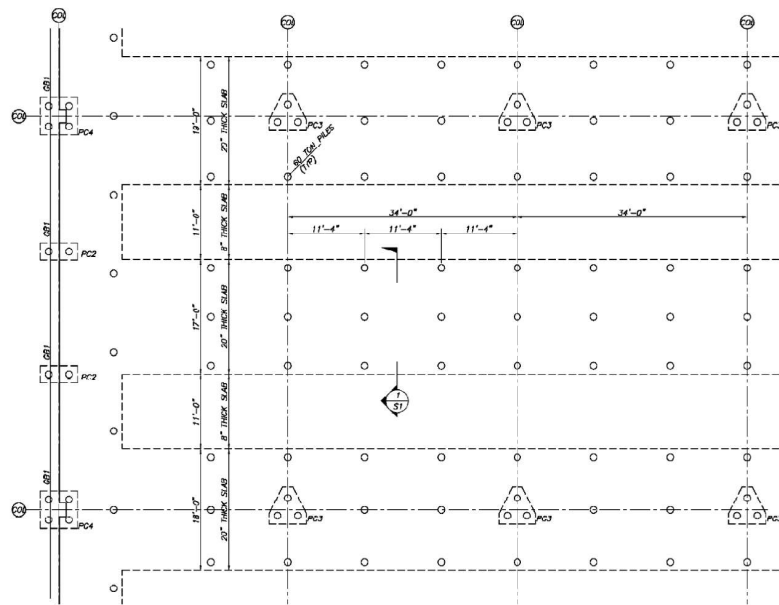
Group 1: Divisions

Group 2: Major ItemCode Groups

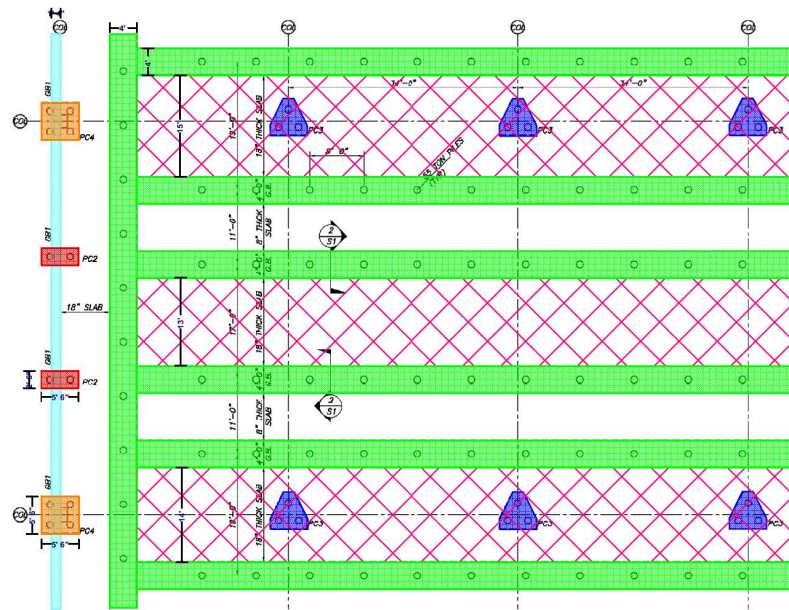
Estimator : John Brockington

Project Size : 0 SQFT

Description	Quantity	UM	Labor	Material	Subcontract	Cons. Eqp.	Proc. Eqp.	Unit Cost	Total Cost
Haul excavated material 8-10 miles (Assumed QTY)	3,450.00	TONS	6,556.29	1,160.24		11,596.01		5.60	19,313
Contaminated soil disposal (Assume 1.5T/CY)	3,450.00	TONS			141,450.00			41.00	141,450
Compact subgrade	110,600.00	SQFT	28,493.33	12,741.12		28,171.31		0.63	69,406
Vapor barrier	121,660.00	SQFT	21,286.24	3,090.16				0.20	24,376
Sand fill layer, 4" depth (DELETED)		CUYD						18.00	
Type B aggregate base layer, 12" depth (DELETED)		CUYD						26.00	
Geogrid soil stabilization (DELETED)		SQYD						4.90	
Crushed stone layer, 12" depth	5,120.00	CUYD	22,302.49	100,848.64		40,676.13		32.00	163,827
** Total Earthwork			84,102.71	120,283.22	141,450.00	88,640.94			434,477
Foundations									
H-Piles, HP10x42, 60-Ton capacity, 110' ave. depth	840.00	EACH			3,045,000.00			3,625.00	3,045,000
Geofoam, EPS 29 (DELETED)		CUYD						102.26	
** Total Foundations					3,045,000.00				3,045,000
* Total Sitework	1.00	LS	105,809.87	124,058.28	3,186,450.00	130,176.47		3,546,494.62	3,546,495
Concrete									
Formwork									
Pile cap edge forms	3,957.00	SQFT	49,982.07	1,708.24				13.06	51,690
Grade beam form 0' to 2' deep	19,800.00	SQFT	124,039.97	12,264.12				6.88	136,304
Grade beam form hardware	9,900.00	SQFT		1,013.76				0.10	1,014
Form releasing agent	23,757.00	SQFT	14,206.21	546.41				0.62	14,753
** Total Formwork			188,228.26	15,532.53					203,761
Concrete reinforcing									
SOG rebar	67.82	TONS	114,128.46	81,378.36				2,882.93	195,507
Pile cap rebar	14.11	TONS	23,326.01	16,934.83				2,852.88	40,261
Grade beam rebar	121.41	TONS	200,674.97	145,691.26				2,852.88	346,366
** Total Concrete reinforcing			338,129.45	244,004.45					582,134
Cast in place concrete									
** Concrete in pile caps and pier caps **		****							
4000 psi direct	177.90	CUYD	5,129.98	18,323.91		105.87		132.43	23,560
Concrete in grade beams		****							
4000 psi direct	1,299.38	CUYD	42,821.42	133,835.63		883.70		136.64	177,541
Concrete in slab on grade		****							
4000 psi w/pump	1,393.52	CUYD	51,962.06	144,748.53		29,986.54		162.68	226,697
* No. of pile caps *	139.00	EACH							
* Grade beam length *	6,600.00	LNFT							
* SOG area *	43,000.00	SQFT							
Finish footing concrete top surface	25,324.75	SQFT	4,442.72	154.48		2,888.47		0.30	7,486
Point and patch	19,800.00	SQFT	4,838.43	421.74		3,147.72		0.42	8,408
Protect and cure vertical surfaces	23,757.00	SQFT	6,089.51	783.98		3,961.21		0.46	10,835
Protect and cure horizontal surfaces	68,324.75	SQFT	16,696.18	1,810.61		10,862.00		0.43	29,369
** Total Cast in place concrete			131,980.30	300,078.88		51,835.51			483,895
* Total Concrete	1.00	LS	658,338.00	559,615.85		51,835.51		1,269,789.36	1,269,789
Total Gross Cost			881,516.84	708,234.96	3,204,450.01	195,156.94			4,989,359



PARTIAL PLAN - OPTION 1
1/8"=1'-0"



PARTIAL PLAN - OPTION 2
1/8"=1'-0"

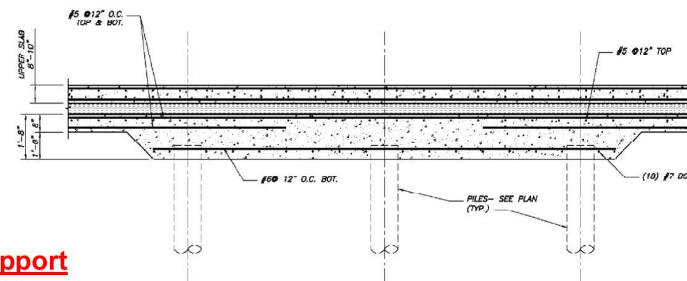
CONCRETE NOTES

1. CONCRETE WORK SHALL CONFORM TO THE ACI "MANUAL OF CONCRETE PRACTICE," INCLUDING BUT NOT LIMITED TO ACI 318 "DEVELOPING REQUIREMENTS FOR STRUCTURAL CONCRETE" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE."
2. ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. ADDITIONAL CONCRETE MIX PERFORMANCE DATA INCLUDING AIR CONTENT, WATER-CEMENT RATIO, AGGREGATE SIZE, SLUMP, ETC. HAS BEEN INCLUDED IN THE PROJECT SPECIFICATIONS. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60 DEFORMED BARS AND SHALL BE DETAIL, FABRICATED, AND PLACED IN ACCORDANCE WITH ACI 318.
4. REINFORCEMENT SHALL BE CONTINUOUS AROUND CORNERS AND AT INTERSECTIONS. PROVIDE LAPPED BARS AT NECESSARY SPICES OR WELDED BARS AT DISCONTINUOUS ENDS. SEE SCHEDULE FOR REQUIRED REBAR LAP SPICE LENGTHS.
5. SLAB THICKNESSES INDICATED ON THE DRAWINGS ARE MINIMUMS. PROVIDE SUFFICIENT CONCRETE TO ACCOUNT FOR STRUCTURAL DEFLECTION, SUBGRADE FLUCTUATIONS, AND TO OBTAIN THE TO ACCOUNT ELEVATION AT THE FLATNESS AND LEVELNESS INDICATED.

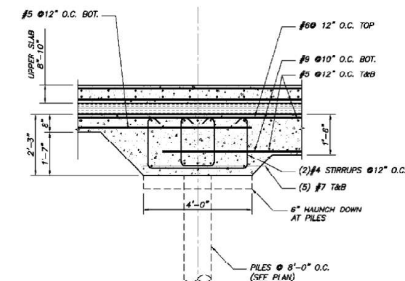
Option 2 Concrete Support

- 8 - Pile Cap (PC2) - 46 Total QTY
- 9 - Pile Cap (PC3) - 48 Total QTY
- 10 - Pile Cap (PC4) - 45 Total QTY
- 11 - Grade Beam, 1'-7" depth - 5,100 Total LF
- 12 - Thickened Slab, 10" depth - 43,000 Total SF
- 13 - Grade Beam (GB1) - 1,500 Total LF

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND SHALL REMAIN THE PROPERTY OF BECKER ENGINEERING, INC. IT SHALL NOT BE REPRODUCED, COPIED, OR OTHERWISE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF BECKER ENGINEERING, INC. ANY REPRODUCTION OR USE WITHOUT THE WRITTEN CONSENT OF BECKER ENGINEERING, INC. SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BECKER ENGINEERING, INC. FOR ANY DAMAGES, INCLUDING REASONABLE ATTORNEY'S FEES, THAT MAY BE INCURRED BY THE USER.

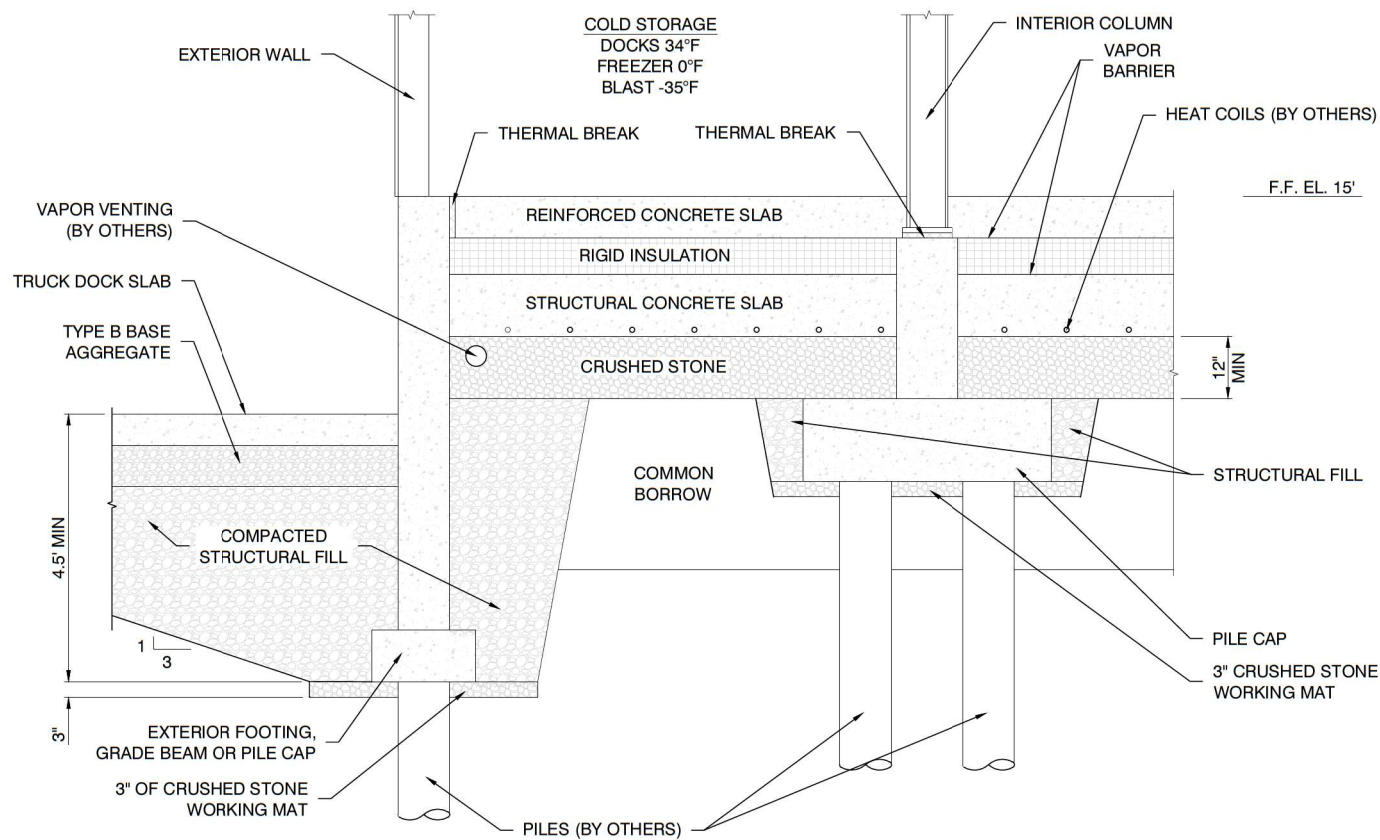


SECTION
1/2"=1'-0"



SECTION
1/2"=1'-0"

NOT FOR CONSTRUCTION
PRELIMINARY
3/9/18
THESE DWGS ARE NOT COMPLETE. DESIGN IS STILL IN PROGRESS. CONTRACTOR SHALL CARRY APPROPRIATE CONTINGENCY.



WOODARD & CURRAN

FOUNDATION DETAIL SKETCH

PROPOSED LOW TEMP WAREHOUSE
460 COMMERCIAL STREET
PORTLAND, MAINE

Job No.:	16-1314	Scale:	Not to Scale
Date :	02/14/2018	Sheet:	4

12. STORMWATER MANAGEMENT

The attached Stormwater Management Plan describes the proposed stormwater management measures for the project, as shown on the design drawings attached to Section 1 of this Report. A USGS map and a soils map are attached to Section 1 and Section 11 of this Report, respectively.

12.1 LIST OF ATTACHMENTS

- Stormwater Management Plan (Bound Separately)

13. URBAN IMPAIRED STREAM

The proposed development is not located within the watershed of an Urban Impaired Stream; the Urban Impaired Stream Standard does not apply.

14. BASIC STANDARD

The proposed development is adjacent to the Fore River; there are no other known protected resources associated with the Site. As shown by the soil survey attached to Section 11 of this Report, the Site is comprised primarily of cut and fill land. The Soil Erosion and Sediment Control Plan and compliance with the Basic Standard is described in the Stormwater Management provided as part of Section 12 of this Report.

During construction, the Contractor will be responsible for conducting inspections in accordance with the attached *Stormwater Erosion & Sediment Control Inspection Report Form* (or equivalent). Inspections shall be performed at least once a week, as well as before and after storm events. A person with knowledge of stormwater management and erosion and sediment control, including the standards and conditions of the permit approvals, shall conduct the inspections and perform maintenance of the facilities. If maintenance or modifications are necessary, implementation will be completed within seven days and prior to any rainfall event. After construction, the Owner will be responsible for inspecting and maintaining the Site's stormwater system.

14.1 LIST OF ATTACHMENTS

- Erosion & Sediment Control Inspection Report Form

**EROSION & SEDIMENT CONTROL
INSPECTION REPORT FORM**

Inspectors:

Date: ____ / ____ / ____

____ of _____ (Project Owner)
____ of _____ (Contractor)
____ of _____
____ of _____

Storm Event? ☐ Yes ☐ No Rainfall Amount _____ Storm Duration _____ hours

Visual Observations of Activity and Site Conditions:

Disturbed Soil Areas:

Storage Of Soils:

Sediment & Erosion Control Measures:

Construction Site Entrance:

Surface Stabilization:

Corrective Action Taken:

Attachments (if any):

Signature:

Name

Title

Date

15. GROUNDWATER

The proposed development is not located within a Significant Sand and Gravel Aquifer. As previously noted, the Site is comprised primarily of cut and fill land. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP) as discussed in greater detail in Section 18 of this Report. The proposed development will not infiltrate to or extract groundwater and is not anticipated to result in any impacts to groundwater.

16. WATER SUPPLY

The proposed development will be provided with both fire protection water service and domestic water service as shown on the drawings that will connect to existing water services on the property. Woodard & Curran has been working directly with the Portland Water District to determine the appropriate design for this work. An ability to serve determination will be provided upon receipt.

17. WASTEWATER DISPOSAL

The proposed development will be provided with sanitary sewer service to an existing sewer manhole adjacent to West Commercial Street as shown on the drawings. A Wastewater Capacity Application was submitted to the City under separate cover as part of the Site Plan Application for the proposed development. A copy of the City's determination will be provided upon receipt.

18. SOLID WASTE

18.1 SOLID WASTE

All solid waste materials and recyclables from the proposed development will be transported and disposed of or recycled in accordance with applicable laws and regulations.

18.2 CONSTRUCTION & DEMOLITION DEBRIS

The proposed development will generate construction waste and demolition debris (CDD). The Contractor will be responsible for properly disposing of the CDD. The Contractor will be responsible for handling, managing, and disposing of all waste generated by construction in accordance with the Maine Solid Waste Management Regulations and all other applicable local, state, and federal regulations.

18.3 SPECIAL & HAZARDOUS WASTE

Numerous investigations have been completed to evaluate soil, groundwater, and soil vapor conditions at the Site since 1999. In addition, several active remedial efforts have been completed to address known environmental conditions. These activities have been completed in coordination with the Maine DEP VRAP and related Spills & Site Cleanup programs. Consistent with a Maine DEP VRAP No Action Assurance Letter (NAAL) dated June 1, 2012, the necessary steps that must be taken in order to receive closure and liability protection under the VRAP are summarized below:

1. The existing soil management plan will be revised and submitted to the Maine DEP for review and approval;
2. Any potential soil vapor issues in future on-site structures will either be addressed and characterized with investigation prior to construction or presumptively addressed through installation of vapor collection systems;
3. No potable wells will be installed on the property in the future, and;
4. The property use will remain non-residential use unless other uses are approved by the Maine DEP.

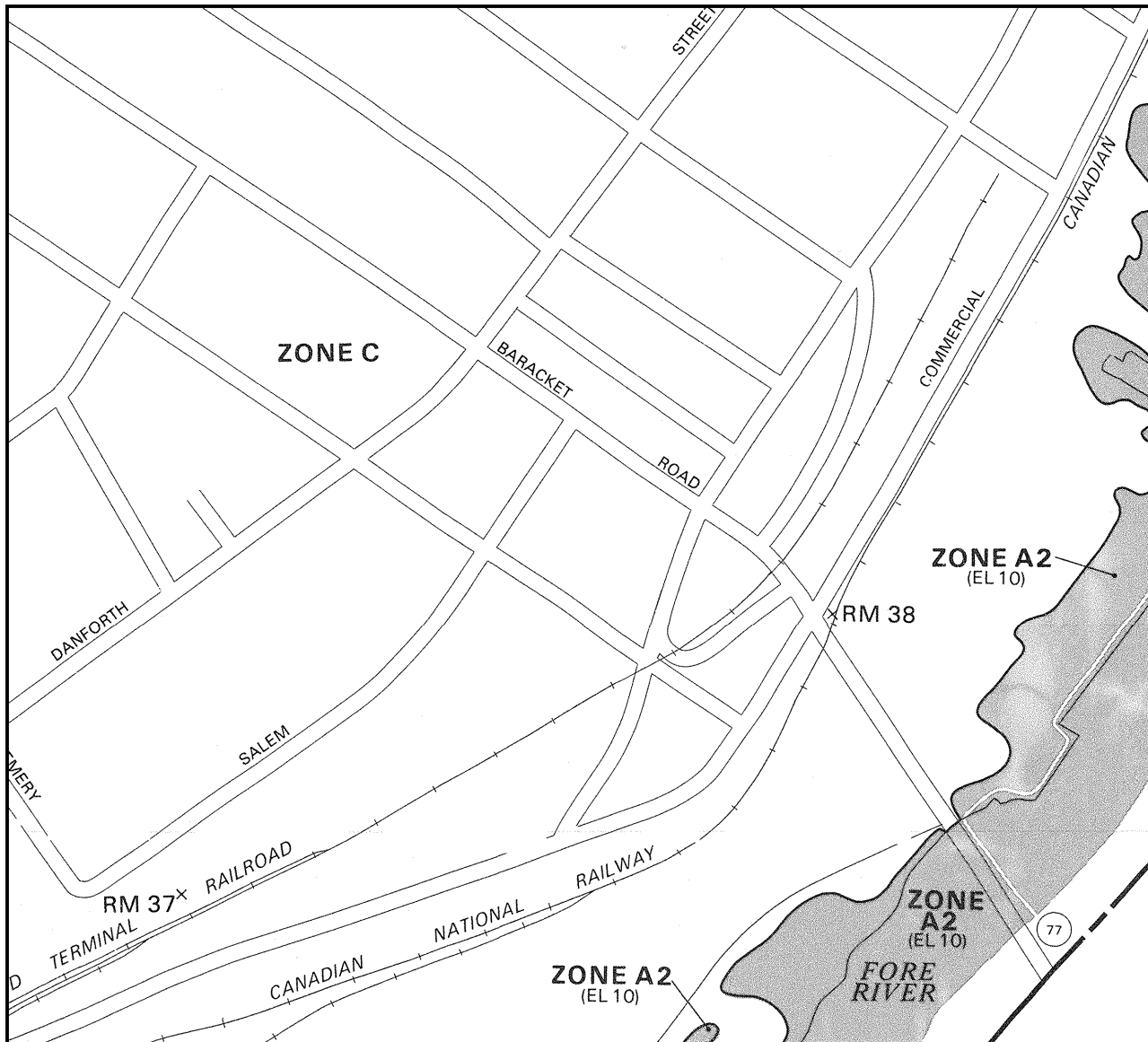
It is anticipated that the Maine DEP VRAP requirements outlined above will be fulfilled as part of the proposed project. Special and hazardous waste encountered during the construction process will be handled, managed and disposed of in accordance with the Maine DEP approved revised soil management plan and all applicable local, state and federal regulations.

19. FLOODING

The proposed development is partially located within a flood hazard zone (A2), as shown on the FEMA Flood Insurance Rate Map attached to this Section. The Base Flood Elevation for the site is 10'. An application for a Flood Hazard Development Permit will be submitted to the City of Portland. The proposed development will not cause or increase flooding or cause an unreasonable flood hazard to any adjacent structures. The flood zones are located along the southern portions of the proposed development, as shown on the drawings.

19.1 LIST OF ATTACHMENTS

- FEMA Flood Insurance Rate Map



APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
PORTLAND, MAINE
CUMBERLAND COUNTY

PANEL 13 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

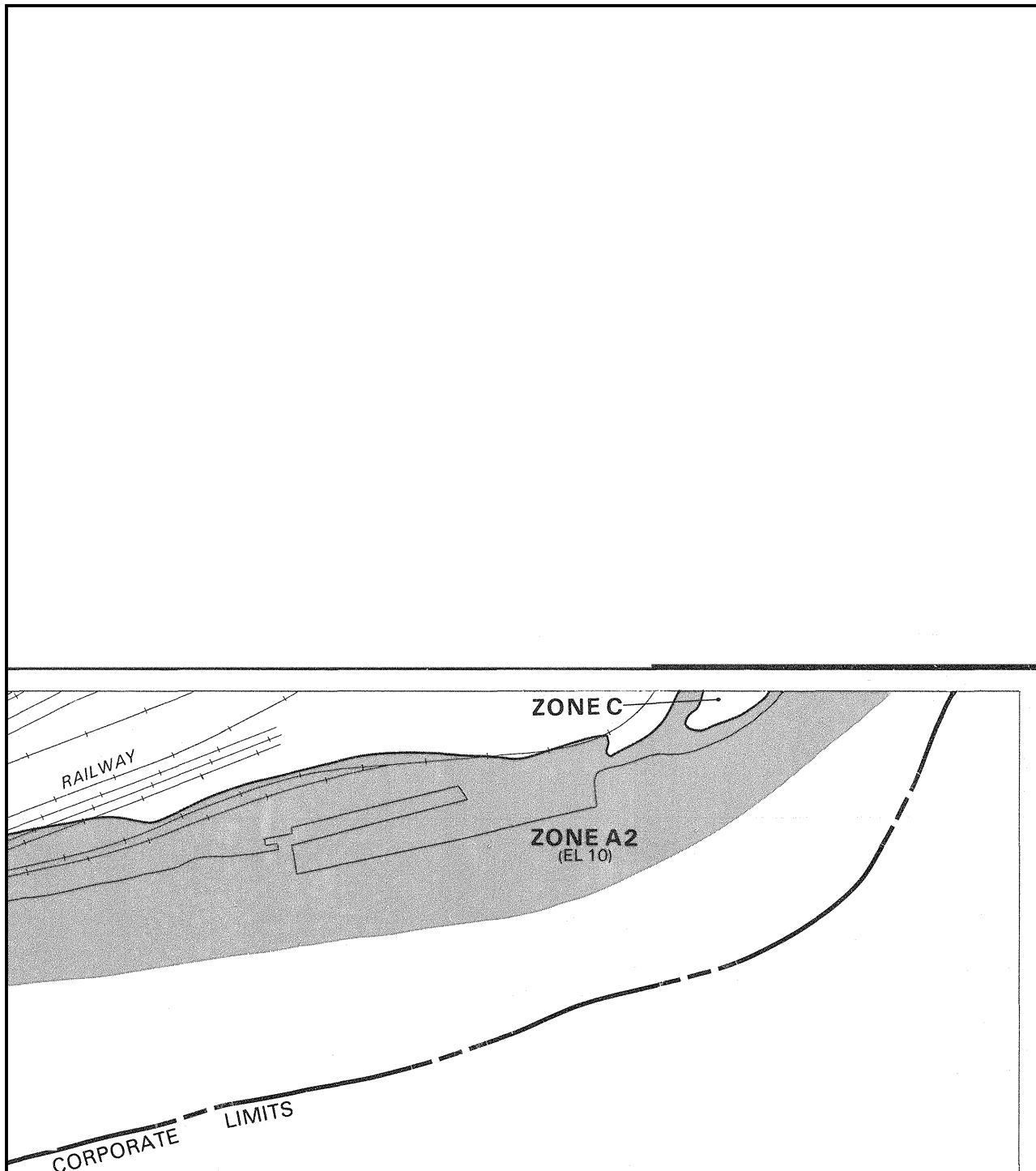
COMMUNITY-PANEL NUMBER
230051 0013 B

EFFECTIVE DATE:
JULY 17, 1986

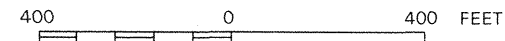


Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
PORTLAND, MAINE
CUMBERLAND COUNTY

PANEL 16 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230051 0016 B

EFFECTIVE DATE:
JULY 17, 1986



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

20. BLASTING

Based on geotechnical investigations completed to date, no blasting is anticipated for this project. The geotechnical report for this project is attached to Section 11.

21. AIR EMISSIONS

The project is not anticipated to require an air emissions license; this Section is not applicable.

22. ODORS

The proposed development will not involve any processes that emit significant odors; this Section is not applicable.

23. WATER VAPOR

The proposed refrigeration system cooling tower will generate water vapor, but not at a scale that has the potential to change the local climate. Therefore, this Section is not applicable.

24. SUNLIGHT

The proposed development will not block access to sunlight for any structures utilizing solar energy; this Section is not applicable.

25. NOTICES

The City of Portland has Delegated Review Authority for this application; as such, it is our understanding that the public notice requirements associated with MaineDEP Site Law are accomplished through the public notice process by the City of Portland for the Level III Site Plan process.



woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

Google Groups

Cold Storage

Carl Cramer <carl1cramer@gmail.com>

Apr 16, 2020 10:50 AM

Posted in group: **Planning Board**

I received your notification card about this project.

Even without taking into account the current health and economic devastation of Covid-19, this proposal is preposterous.

Do any of you remember AmeriCold's proposal? It was accepted by the planning board. Only to be subsequently rejected by AmericCold itself as "economically unfeasible." So the MPA wants to build a much larger eyesore, with 40% occupancy to begin.

Here's a thought -- and I am totally opposed to this project in any fashion: build a building that meets 100% of current shipments, but with the ability to expand if and when it is proven that such a need exists. If I had written this proposal as part of an MBA, it would be rejected without comment.

There is NO WAY any public money should be used for this example of MPA's grandiose impossibilities.

And now let's look at today's economic situation. Do you seriously believe with all the crises facing us, that our economy can support such willful waste? Frankly, I am annoyed this is even being considered at this time. We have so many more important issues facing us.

I have so much more to say about this, but will refrain at this moment.

Not one penny in public funds for this boondoggle.

Thank you for listening.

Carl Cramer
225 York Street
Unit 2
Portland, ME 04102

Cold Storage on Commercial St.

Davi Smitti <smitti79@gmail.com>

Apr 17, 2020 10:12 AM

Posted in group: **Planning Board**

Dear Board members,

I am a resident of Portland and have been watching the rampant construction over the past several years. I am concerned because it seems to be occurring without sufficient thought given to parking issues, and beauty, as well as history of the area. The proposed 75 FOOT high cold storage building is another example of looking for income without looking at the long term ramifications. Every time I approach Portland from the Islands, I am dismayed at the ugly beige tall condo ediface on Fore St. that looms over the harbor from the brow of Munjoy Hill.. We do not need another eyesore. Since there are other options such as rail track extension to move cold storage to a non-seaside facility, or adhering to the 40 ft. height limit which was created for a reason already, I am adamantly against this proposal. Please look at more than dollars. Look at the bigger picture.

Sincerely,
Elizabeth Smith
Portland, ME

Cold Storage proposal

david smith <dlsmithmd57@yahoo.com>

Apr 17, 2020 11:07 AM

Posted in group: **Planning Board**

Dear Board:

I am writing to strongly oppose the Maine International Cold Storage facility proposal.

1. How do you envision our need for a cold storage facility to go from nothing significant at present, to abruptly rise up to 108,000 square feet? Really? 2-1/2 acres?

If the projections for its future utilization are similar to the process used to justify the purchase of a second crane for our container ship terminal... I live where I can see them loading and offloading the Eimskip vessels. As a retiree, I enjoy watching that process. I can assure you, that in the two years that we have had two cranes there, *never once* have the two cranes been used simultaneously. One is completely idle. All the time. I strongly fear the same gross underutilization for this massive structure. What's wrong with the 40 (or was it 45) foot height restriction?

2. There is a rail spur right next to the container facility...is there any reason this could not be extended/used to carry refrigerator containers to some other property that is not on the waterfront?

3. This will be a major eyesore. Like other construction projects that are not to scale for our pretty little city by the bay, this is going to stick out like the proverbial sore thumb. Nor will it go away in any of our lifetimes. Some legacy.

I am all in favor of business development, but let's keep it to scale, and let's not permanently despoil our town's waterfront property. I would suspect a condo developer could put up a lovely two or three story building here that would generate far more tax revenue for the city, and would be a much better utilization of the little waterfront property that remains undeveloped here in Portland.

Or, here's a counter-proposal that is quality-of-life driven..very anti-business in the short run, but...long-term yield??? Appropriate the land for a waterfront park. Build a West End water access. Or, something akin to what's happening on Thompson's Point, which is siphoning people out of our downtown. Hmmm?

Sincerely,
David L. Smith
24 Brackett St #4
Portland
520.249.8648

Google Groups

Cold Storage

Melissa Wood <melissafwood@gmail.com>

Jun 4, 2020 4:53 PM

Posted in group: **Planning Board**

I received notification about the development of a cold storage warehouse on West Commercial Street. It should not go forward. Here's why:

If Americold couldn't build its dream 120,000-square-foot facility, we were told, it would walk away. But it did anyway.

And yet the Port Authority is still pushing for cold storage on a grand scale. This time, it's not market-driven thanks to subsidies from the DOT, which leaves me confused: If it doesn't make sense in the marketplace why are we still building it? Shouldn't we at least rethink the scale?

I have some ideas. Newspaper articles have described this warehouse as "hotly anticipated" and "long awaited". Developer and former DOT commissioner George Campbell told Maine Biz it would be the "final crowning piece" of his waterfront achievements. He and his colleagues have never justified why it needs to be so huge. Back in March, they predicted using only 40 percent of the space. Given the current environment, they probably need even less. Regardless, does that sound like something we urgently need? My guess is that a "crowning piece" needs to be prominent. Look at what we built. Please. This is not the London Eye or Sydney Opera House.

But much more importantly, this warehouse is a terrible idea. Most of our food supply is based on global trade, but international markets are unpredictable (e.g., lobster tariffs). Imagine if we invested in improving waterfront access and developing more stable regional markets for local fishermen and aquaculture businesses instead? This huge warehouse only serves to convert our local food into an industrialized, low-cost commodity. I believe in a working waterfront, but not this.

When you step back and think about it, the only thing this warehouse will do is turn the Portland waterfront into a transportation hub. It will become a lonely place dominated by the endless rattle of idling diesel engines and generic containers whose insides are a mystery. When the city decided on the slogan, "Yes, Life's Good Here," is this what you envisioned?

We can do better; we can be more creative. There's never been a more appropriate time to rethink what we think we know, and to question what we believe is best. Stop this misguided development before it's too late.

Sincerely,

Melissa Wood
225 York Street, #2

Cold storage on Commercial St

Davi Smitti <smitti79@gmail.com>

Tue, Jun 16, 2020 at 2:21 PM

To: planning@portlandmaine.gov

Hello,

I am a neighbor to the proposed cold storage facility - living at the water end of Brackett St.

I attended the virtual meeting on 6/10 when the proposal was presented to the neighbors.

Concerns : hours of operation. Semi trucks are required

by law to have back up beeps -meant to be very annoying to get attention. Thus, having trucks arrive before 7 a.m. would be rude and deeply interfere with sleep and quality of life. I would request 8 a.m. but I realize that would be "fighting city hall. "

I realize the height falls within regulations. The new huge Portland Yacht barn is shorter but in the drawings, the cold storage building does not look higher when it is significantly so. The Portland Yacht barn is a blemish on our views. Please feel free to come to our place and take a real look.

I would propose trees, a large wall or some barrier between the facility and the Eimskip lot to dull the noise of the trucks at the loading dock.

Commercial St. already has lines of semis every day idling waiting to get into the Eimskip lot. This is bad for our environment. There should be restrictions on idling that are enforceable.

As construction is contemplated, please make note that it is a city ordinance that it doesn't start til 7 p.m. Please make this crystal clear to that team. I have lived during construction at other Portland sites and seen this disrespected. It is often mentioned by others in See,clickm,fix complaints. I would deeply appreciate thoughtfulness in this arena.

Thank you for your attention and work.

Elizabeth Smith

[24 Brackett St](#)

[Portland, ME](#)

Google Groups

Public Comment on Plan Number: PL-001042-2020, West Commercial St. cold storage project

Elizabeth Parsons <ecparsons33@hotmail.com>

Jun 18, 2020 4:08 PM

Posted in group: **Planning Board**

To members of the Planning Board and the City's Planning Department:

A review of materials submitted and notes obtained from the recent neighborhood meeting has not clarified if the proposed project will make use of the nearby railroad line. It does appear that the project, as currently envisioned, would entail significant truck traffic. And this project is not the only one going forward on Commercial Street. There's the Veteran's health care building further on towards the bridge that is anticipated to have considerable vehicular traffic involved. And then Hobson's Landing and one or two hotels further towards the Old Port will bring in more cars and trucks as well.

I hope that the Board will carefully review the City's Comprehensive Plan; the joint planning process with South Portland: One Climate Future; and the excellent work being done by the Maine Climate Council particularly on the issue of **transportation** as you consider this current project. Transportation is responsible for over half of this state's CO2 emissions and global CO2 parts per million are now over 417, far higher than ever in human history

A basic question to probe should be:

- How does the project's plan for transport to/from the building align with not only our City's goals but the necessity of doing much more than we are currently to reduce fossil fuel emissions?

Thank you for considering these comments.

Sincerely,
Elizabeth C. Parsons
44 Winter Street

A prohibited use in the WPDZ

June 18, 2020

To Chairman Mazer and members of the Planning Board:

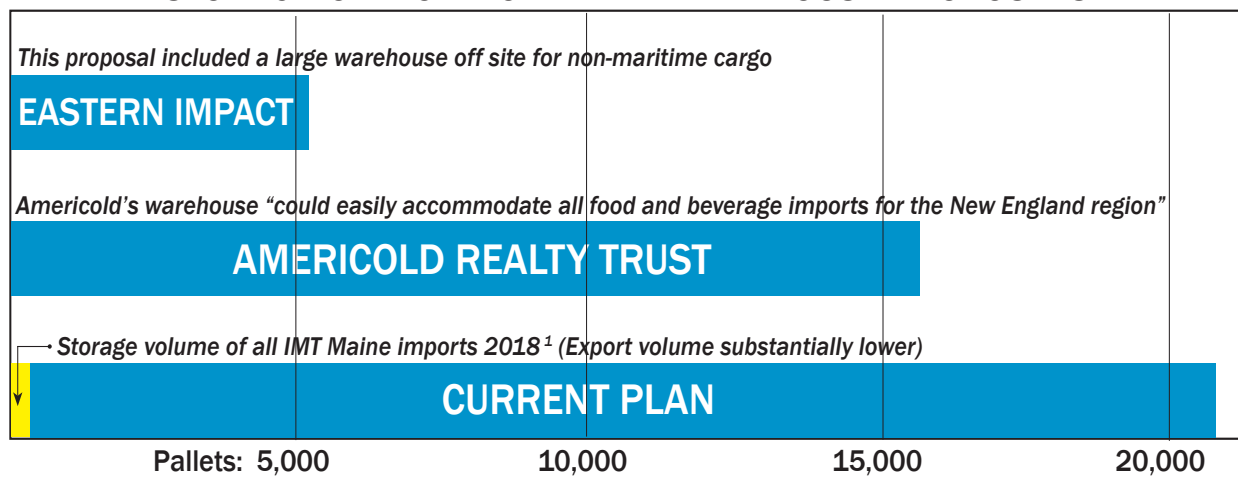
The Waterfront Port Development Zone is designed to prevent truck-centric developments – like this proposed warehouse – along a narrow stretch of Portland’s deep-water frontage. The applicant has said Eimskip’s maritime customers would use up to 40% of the warehouse. If one accepts that exceedingly optimistic estimate,¹ then non-maritime cargo transported by tractor trailers would fill at least 60% of the storage space.

With that exponential increase in truck traffic, WPDZ restrictions would prohibit the International Marine Terminal from being a permitted “intermodal transportation facility.” Consequently, the zoning definition of truck terminal, “a facility primarily for handling and storage of goods transported by tractor trailers,” would apply to this warehouse.² And truck terminals are a prohibited use in the WPDZ.

Moreover, this proposal fails to meet both overarching requirements of the port zone. Developments are limited primarily to those “dependent upon deep water” and “which contribute to port activity.”

- Even the broadest definition of deep-water dependence would exclude cargo that arrives and leaves by tractor trailer. The warehouse would be dependent on West Commercial Street, not the Fore River.
- The warehouse would have an adverse impact on port activity by adding significant traffic – and noxious pollution from each refrigerated truck’s two engines.³ Sixty percent non-maritime cargo would generate about 20,000 tractor-trailer trips annually at the IMT, conservatively.⁴ Adjusting for partial loads and thousands of empty loads (after deliveries and before pickups), unnecessary tractor-trailer trips would exceed 40,000, and higher yet if maritime storage volume realistically remained below 25% in the warehouse for decades to come.
- The IMT has one of the smallest footprints among U.S. container ports, and quadrupling the project’s size for non-maritime customers would adversely impact future marine uses.⁵ The development site would best contribute to the port’s continued expansion⁶ if used as much as possible for essential marine-related needs – rather than exclusively for a warehouse to store frozen food rarely to arrive or leave by cargo ship.

STORAGE CAPACITY OF THREE WAREHOUSE PROPOSALS



The applicant is seeking to build a warehouse with 33% more capacity than one previously proposed by Americold.⁷ Yet credible analysis of maritime-storage demand is lacking. In fact, a market-analysis summary from the applicant does not even mention maritime cargo.⁸ Rather, it stresses the need for a “distribution center,” partly driven by “ecommerce and home delivery,” for frozen-food products trucked into Portland’s congested urban core.

For most cargo that arrives by ship, Portland is simply a transfer point before the refrigerated containers leave via I-95. Out-of-state and Canadian companies import about 90% of the terminal’s refrigerated cargo, and most have financial and operational reasons to move containers to their own cold storage, or to public cold storage near their facilities.⁹

Those companies are IMT shipping customers – not IMT storage customers. That helps explain Eimskip’s growth in Portland without nearby cold storage, except for an older Americold facility on Read Street (which would have a competitive edge over any IMT warehouse for local low-value product like bait fish).

As for refrigerated exports, volume is modest compared to imports. Moreover, many Maine exporters – including pharmaceutical, wild blueberry and potato product companies – operate their own cold storage. Blueberry processors, for instance, have invested heavily in cold storage over the past decade. Their exports, trucked from Down East, are loaded directly onto Eimskip vessels.

A local consortium, mindful of the zoning and logistical problems of a massive IMT warehouse, envisioned a smaller facility – yet large enough to accommodate substantial future growth of maritime cargo. Eastern Impact LLC, together with a top-ten cold storage company, proposed a waterfront warehouse one quarter the size of the current proposal. In tandem, the local consortium planned to build a much larger warehouse off site for non-maritime cargo, value-added services and distribution.¹⁰

That right-sized IMT warehouse would already be storing maritime cargo, but the Port Authority rejected the concept twice, in 2015 and 2017. Instead it financed a campaign for zoning changes to allow construction of Americold’s facility, which “could easily accommodate all food and beverage imports for the New England region,” according to the company.¹¹

During its independent lobbying for the Americold project, the Port Authority commissioned maritime-storage analysis that stretched credulity with inflated numbers.¹² But that faulty analysis could not override the reality of limited demand for IMT maritime storage – a primary constraint on Americold’s profitability prospects. In 2018, for instance, 100% of Maine’s refrigerated imports would have filled about 1% of the warehouse.¹³ Americold abandoned the plan two years ago, saying it failed the company’s “underwriting criteria.”¹⁴

Now the Planning Board is being asked to approve a larger warehouse that flouts the letter and spirit of the Waterfront Port Development Zone in order to maximize the project’s building envelope.¹⁵ The applicant has not shown how the warehouse would be dependent on deep water, nor how it would provide a net-positive contribution to port activity. Most critically, the proposal fits the definition of a prohibited truck terminal, and its construction would cause irreparable damage to the port development zone. The application should be denied.

Sincerely,



Mark McCain

45 Summer Street, Portland, Maine 04102
walworthmccain@maine.rr.com

¹ 40% of the warehouse space would accommodate about 130,000 pallets of frozen product annually, assuming an average pallet turnover of 16 per year. (In its RFP proposal, page 16, Americold specified a 25% faster turnover of 20 per year.) Maine companies imported 37 refrigerated containers during the fourth quarter of 2018, the most recent period analyzed, or about 3,000 pallets on an annualized basis. That equals 1% of the warehouse space if every pallet was stored on site. (37 forty-foot containers x 20 pallets each x 4 quarters in 2018 = 2,960 pallets.)

“Up to 40%” comment from George Campbell of Treadwell Franklin Infrastructure Capital, a development partner of the proposed Maine International Cold Storage Facility, *“Developers Revive Plans for Cold Storage Facility on Portland Waterfront”* Portland Press Herald 3/5/2020. Affirmed in a 3/18/2020 email from the development team: “Maine’s need for imported food products is growing and will continue to grow; it is expected that the facility will be used to store some of these products. Eimskip intends to use up to 40% of the facility for its own customers.”

² The Sec. 14-47 definition of truck terminal includes an exception: It “does not apply to truck activity incorporated into or ancillary to an Intermodal Transportation Facility.” Intermodal facilities are a permitted use in the Waterfront Port Development Zone – but only if “principally for vessels with regularly scheduled destination service or for railroad transportation service” (Sec. 14-319). With the addition of this warehouse, storing primarily cargo transported both ways by truck, the International Marine Terminal would not clear that hurdle.

Tractor trailers would be the principal mode of transportation in the IMT, not vessels or rail. Therefore, the IMT could not be permitted as an intermodal facility, and the warehouse would be a prohibited “truck terminal” as defined in Sec. 14-47: “a facility primarily for handling and storage of goods transported by tractor trailers.”

(If two separate parcels – 10 acres owned by the city, including the Eimskip pier, and 18 acres owned by the state, including the proposed warehouse – cannot be permitted as a single intermodal facility, then any arguments supporting this proposal collapse even quicker. Permitting only the 10-acre parcel with the Eimskip pier as an intermodal facility, then defining the warehouse truck activity as “ancillary,” would not be allowable. The majority of that truck activity would be independent of the International Marine Terminal – not ancillary. But more importantly, that parcel by itself does not include the multiple modes of transportation necessary to meet the definition of an “intermodal transportation facility.”)

Estimated weekly transportation of containers at the IMT, including the proposed warehouse:

- **330 loaded 40-foot containers transported by vessel**, maritime, either incoming or outgoing (120% of 2019 volume, which was 14,300 40-foot containers, or 275 weekly)
- **718 loaded 40-foot containers transported by tractor trailer:**
 - 330 by tractor trailer, maritime, either incoming or outgoing (including warehouse volume)
 - 388 by tractor trailer, non-maritime loaded containers, half incoming, half outgoing (60% of warehouse storage space)
- Negligible by rail

(Current rail transport of IMT containers is essentially nonexistent. Nationwide, primarily dry containers, not “reefers,” are shipped by rail – typically long distances. IMT non-maritime cold storage would be regional, with short-haul trucking of containers to and from the warehouse.)

The warehouse truck volume is based on a conservative pallet turnover rate of 16 per year. Using Americold’s annual turnover rate of 20 pallets, 60% non-maritime cargo would generate **485 warehouse container** shipments weekly – for a tractor-trailer total of 829 loaded 40-foot containers. (See footnote no. 4 for container calculations.) Moreover, maritime storage likely

would fill less than 40% of the warehouse, thereby increasing the volume of non-maritime truck traffic. And many tractor trailers would carry partial loads – especially with the applicant’s intention to provide supermarkets and other customers with just-in-time shipments.

“Cold storage facility” is a conditional WPDZ use, but that is superseded by the prohibited use of “truck terminal” for this proposal. Additionally, the warehouse would not be “compatible with water dependent and marine uses,” as required of conditional uses (Sec. 14-320). A cold-storage facility storing +/-75% marine freight likely could be shown to be compatible with water dependent and marine uses, but not one storing +/-25% marine freight – some of the reasons having been outlined in this letter.

³ The adverse impact would include significant exhaust and diesel soot, both to the IMT and its environs. Refrigerated tractor trailers are especially toxic because highly polluting auxiliary engines operate continuously for cooling. Those diesel engines are essentially unregulated, and emit up to six times as much nitrogen oxide and 30 times as much fine-particulate soot as primary truck engines.

⁴ Calculations for 20,000 trips:

Americold estimated that a 15,000-pallet warehouse could store +/-300,000 pallets yearly, i.e., an average annual turnover of 20 pallets per pallet position. For 60% non-maritime cargo in the proposed warehouse, assuming all full trailer loads:

21,000 pallet positions x 20 turnovers x 0.6 share ÷ 20 pallets/trailer x 2 arrival/departure = 25,200 fully loaded tractor-trailer trips annually or 485 trips weekly.

Reducing the pallet turnover rate by 20% to be conservative, 16 turnovers per year would generate 20,160 one-way trips annually or 388 weekly. That count does not include empty loads, after deliveries and before pickups. (The applicant has estimates a maximum of 140 one-way truck trips daily. Multiplied by 7, 60% of that estimate is 588 weekly trips, both full and empty.)

⁵ Non-maritime cold storage at U.S. container ports is virtually nonexistent, and rarely do ports even elect to use waterfront acreage for maritime cold storage. The closest cold storage to Eimskip's previous U.S. port of call in Norfolk, VA, for instance, is six miles from the port.

⁶ The IMT has seen significant growth since 2013, and the applicant predicts freight volume will increase by 30% to 50% over the next two years. But estimating IMT growth is hardly an exact science: In a 2016 federal grant application, the Port Authority predicted “line-of-sight growth targets to exceed 50,000 containers by 2020” – or in excess of 100,000 TEUs (“twenty-foot equivalent units”), about 60% by vessel, and 20% each by rail and barge. Last year the IMT handled 28,600 TEUs – less than 30% of the Port Authority estimate for 2020 volume.

⁷ The current proposed capacity of +/-21,131 pallets (see footnote no. 15) would be 33% larger than Americold’s final design for 15,864 pallets.

⁸ PowerPoint slide from the development team, 5/7/2020:

Market Analysis Preliminary Conclusions

We have uncovered four key learnings in confirming and validating the need for additional cold storage capacity:

1. There is pent up and immediate demand for a local/regional cold storage warehouse
2. This demand for a state-of-the-art cold storage facility is coming from in state processors, growers and grocery retailers that now depend on out of state cold storage operators...which is costly and unsustainable

3. The COVID crisis has surfaced the need for food chains and cold storage to become more local and much more functional in assuring a more flexible and responsive food supply

4. In addition, spikes in ecommerce and home delivery will not abate anytime soon, and can only be accommodated by a modern refrigerated distribution center that has the flexibility and functionality to accommodate a wide range of current and evolving needs for consumers and the community

⁹ The seafood importer High Liner Foods, for instance, has cold-storage capacity for 24,000 pallets in its New Hampshire and Massachusetts warehouses.

One snapshot of IMT import volume: During the fourth quarter of 2018, Eimskip offloaded approximately 470 refrigerated 40-foot containers (about 20 pallets each). That represents a storage volume of about 2,400 pallet positions on an annualized basis, or about 11% of the proposed warehouse, assuming a pallet turnover of 16 per year.

However, supply-chain executives at the two consistently largest importers (Q4 2018, 24% share of imports) have said they do not plan to use IMT cold storage: High Liner Foods of Peabody, MA, and Lindt & Sprungli USA of Stratham, NH. Two other top importers, Atlantika Inc. of New Canaan, CT, and Nordic Group Inc. of Boston, have said the same. Smaller out-of-state importers were not contacted about their storage needs.

¹⁰ Compared to a single warehouse shoehorned into a congested area, Eastern Impact's dual-location proposal offered the opportunity to develop a more powerful economic engine for Maine. The off-waterfront warehouse could be part of a so-called "inland port," similar to ones other states have established, usually with daily rail transportation to the companion water port. With the availability of lower-cost land, the inland ports provide economical and efficient freight distribution, dry storage, customs clearance, container storage and transshipments. They nurture small businesses by leasing space and equipment in their distribution facilities. In addition, inland ports provide easier access for non-maritime users of port services (such as customs clearance for companies like L.L. Bean).

An excerpt from a 2017 letter, Eastern Impact to Port Authority board members:

"As a member of the local community committed to sustainable waterfront development, we would like to bring to your and the public's attention that there are other concepts for the project, including our original proposal, that have yet to be fully explored . . . Our approach from the beginning has been to work with potential customers in Maine and New England to define the most viable cold storage concept for the region while taking into account all stakeholder needs. Reissuing the RFP will allow for a fresh process to ensure that as many of the benefits of the project as possible accrue within the State of Maine and New England to our agriculture, aquaculture, fishing, food and beverage industries, the West End neighborhood and the local tax base and economy." (The Port Authority did not re-issue an RFP.)

¹¹ Americold RFP submission, 9/4/2015, page 12.

¹² "Proposed State of Maine West Commercial Street Cold Storage Facility: Model of Eimskip Cold Storage Need," Woodard & Curran, 4/24/2017. (Rebuttal: "Analysis of Woodard & Curran Study," Tom Robinson, 5/1/2017.) Among the report's significant errors was the assumption that an on-site warehouse would store 100% of IMT refrigerated imports.

¹³ In Q1 2014, Maine companies imported 36 refrigerated containers (13% share of 288 total). In Q4 2018, they imported 37 containers (8% share of 470 total). That represents a negligible increase for Maine imports over four years; a +70% increase for customers outside Maine. The Maine cargo (about 3,000 pallets, annualized) would have filled 1% of the Americold warehouse (150 pallet positions), assuming turnover as stated in Americold's RFP submission.

¹⁴ Americold statement, 6/25/2018: "After three years of careful study, Americold has decided to forgo development of a new facility at the 40 West Commercial Street site along the Fore River in Portland. We have considered the regional economics, construction costs, and industry analysis, and our conclusion is that the cost to operate a state-of-the-art temperature-controlled facility on the 6.6-acre parcel of land at the waterfront does not meet Americold's underwriting criteria."

¹⁵ On October 7, 2019, the warehouse design team met with a group of West End residents to share "initial conceptual ideas." A team member said the Port Authority intended to obtain necessary approvals and permits, then a private entity would proceed as the project developer. The stated capacity was 21,131 pallets. Jon Nass, CEO of the Maine Port Authority, was not present.

One month later, a West End neighborhood leader talked with Mr. Nass, and reported back to other residents that according to Mr. Nass there had been a misunderstanding: The design discussed on October 7 was only an exercise to show maximum optimization of the site; a private developer would determine the actual building size and capacity based on its own market research.

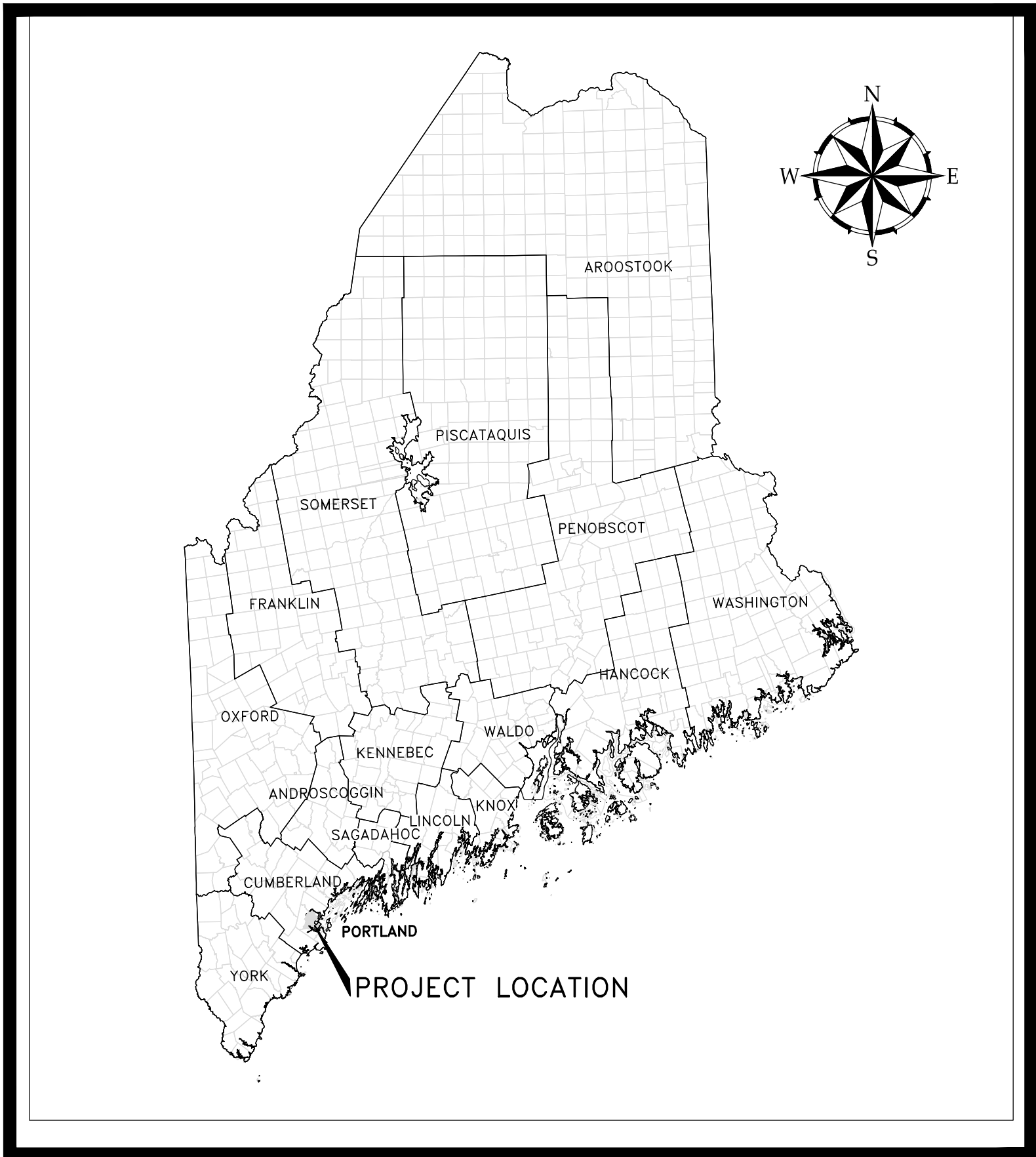
However, during a May 7 remote meeting with a group of West End residents, after the current development team had taken over the project, a team member said the warehouse capacity was essentially unchanged from the conceptual plan's 21,131 pallets: "The amount of pallets stored within are roughly the same, within a few hundred."

MAINE PORT AUTHORITY PORTLAND, ME COLD STORAGE FACILITY

PROJECT NO. 0232277.00

MAY 2020

RESPONSE TO CITY COMMENTS - NOT FOR CONSTRUCTION



PROJECT LOCATION MAP

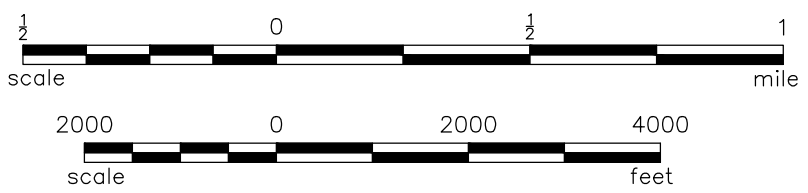


SHEET INDEX	
NUMBER	SHEET TITLE
G-000	COVER
G-001	GENERAL NOTES, LEGEND, SHEET INDEX & ABBREVIATIONS
C-001	DEMOLITION PLAN
C-100	SITE PLAN
C-101	GRADING, DRAINAGE AND EROSION CONTROL PLAN
C-102	UTILITY PLAN
C-200	CIVIL DETAILS - 1
C-201	CIVIL DETAILS - 2
C-202	CIVIL DETAILS - 3
C-203	CIVIL DETAILS - 4
C-204	CIVIL DETAILS - 5
C-205	CIVIL DETAILS - 6
Electrical	
E00.01	ELECTRICAL LEGEND
E05.01	ELECTRICAL SITE PLAN
E05.02	ELECTRICAL SITE GROUNDING PLAN
E10.01	ONE-LINE DIAGRAMS SHEET 1
E10.02	ONE-LINE DIAGRAMS SHEET 2
E10.03	ONE-LINE DIAGRAMS SHEET 3
E20.01	LIGHTING PLAN - OVERALL
E20.02	LIGHTING PLAN - COLD STORAGE LOWER LEVEL
E20.03	LIGHTING PLAN - COLD STORAGE UPPER LEVEL
E20.04	LIGHTING PLAN - ADMIN, MAINTENANCE & DOCK SUPPORT/OFFICES
E20.05	LIGHTING PLAN - TRUCK BAY, MECHANICAL ROOM & MAIN ELECTRICAL ROOM
E30.01	POWER PLAN - OVERALL
E30.02	POWER PLAN - COLD STORAGE
E30.03	POWER PLAN - ADMIN, MAINTENANCE & DOCK SUPPORT/OFFICES
E30.04	POWER PLANS - TRUCK BAY, MECHANICAL ROOM AND MAIN ELECTRICAL ROOM
E60.01	LIGHT FIXTURE & LIGHTING CONTROL SCHEDULES
E80.01	ELECTRICAL DETAILS SHEET 1
E80.02	ELECTRICAL DETAILS SHEET 2



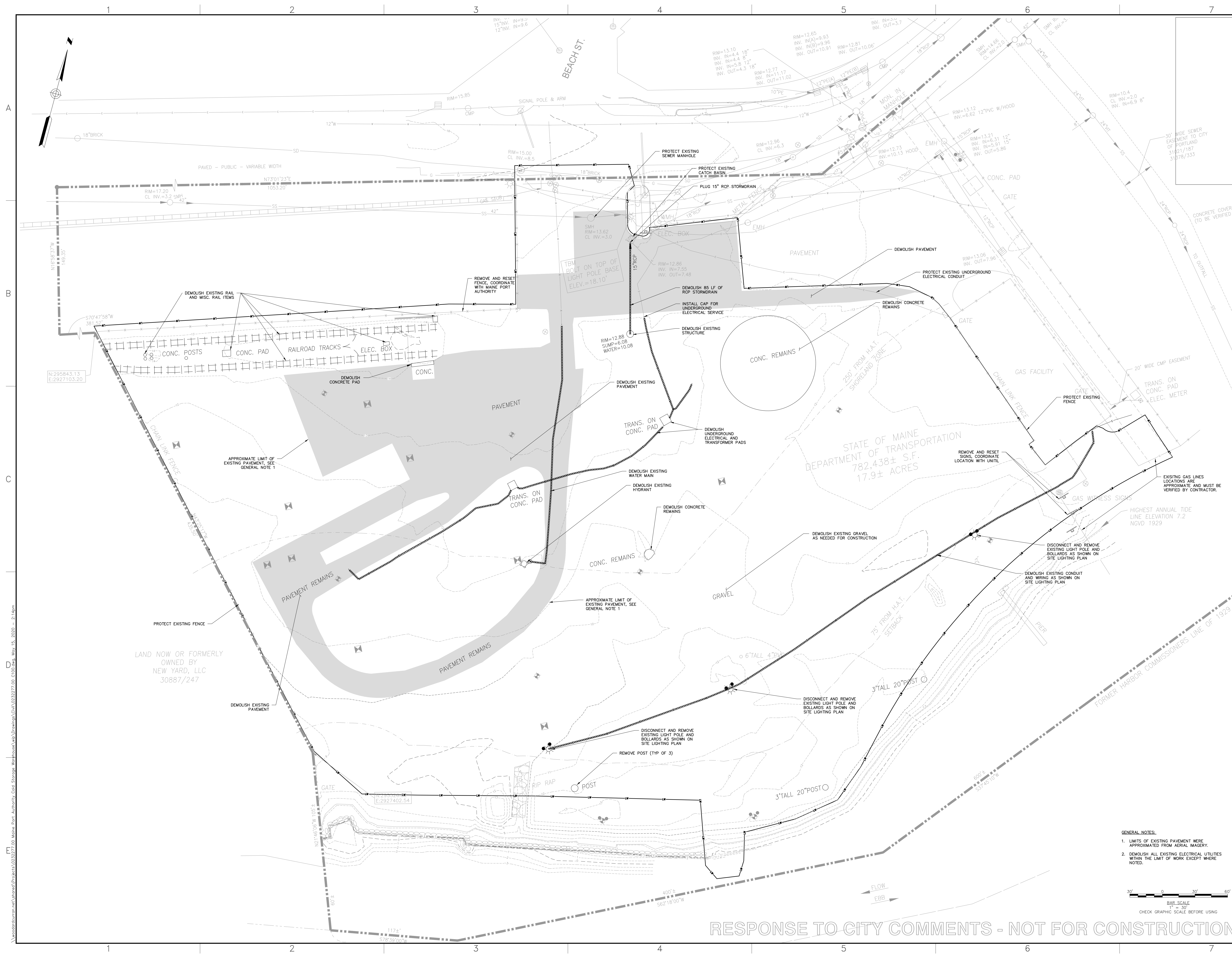
SOURCE: USGS TOPOGRAPHIC MAP

SITE LOCATION MAP



41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS



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**WOODARD
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STATE OF MAINE
DARRIN B. STARRS
No. 15118
Professional Engineer
Professional Seal

DESIGNED BY: ANL
DRAWN BY: SCALVE
CHECKED BY: DS
DATE: 03/27/20
JOB NO: 0232277.00
DATE: MAY 2020
SCALE: 1"=30'
SHEET: 3 OF XX

MAINE PORT AUTHORITY
PORTLAND, MAINE

MAINE PORT AUTHORITY
COLD STORAGE FACILITY

DEMOLITION PLAN

GENERAL NOTES:
1. LIMITS OF EXISTING PAVEMENT WERE APPROXIMATED FROM AERIAL IMAGERY.
2. DEMOLISH ALL EXISTING ELECTRICAL UTILITIES WITHIN THE LIMIT OF WORK EXCEPT WHERE NOTED.

RESPONSE TO CITY COMMENTS - NOT FOR CONSTRUCTION

C-001

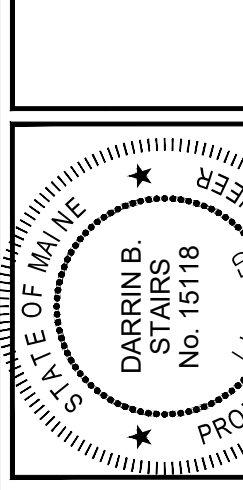


FORE RIVER

RESPONSE TO CITY COMMENTS - NOT FOR CONSTRUCTION

BAR SCALE
1" = 30'
CHECK GRAPHIC SCALE BEFORE USING

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodwardclurran.com

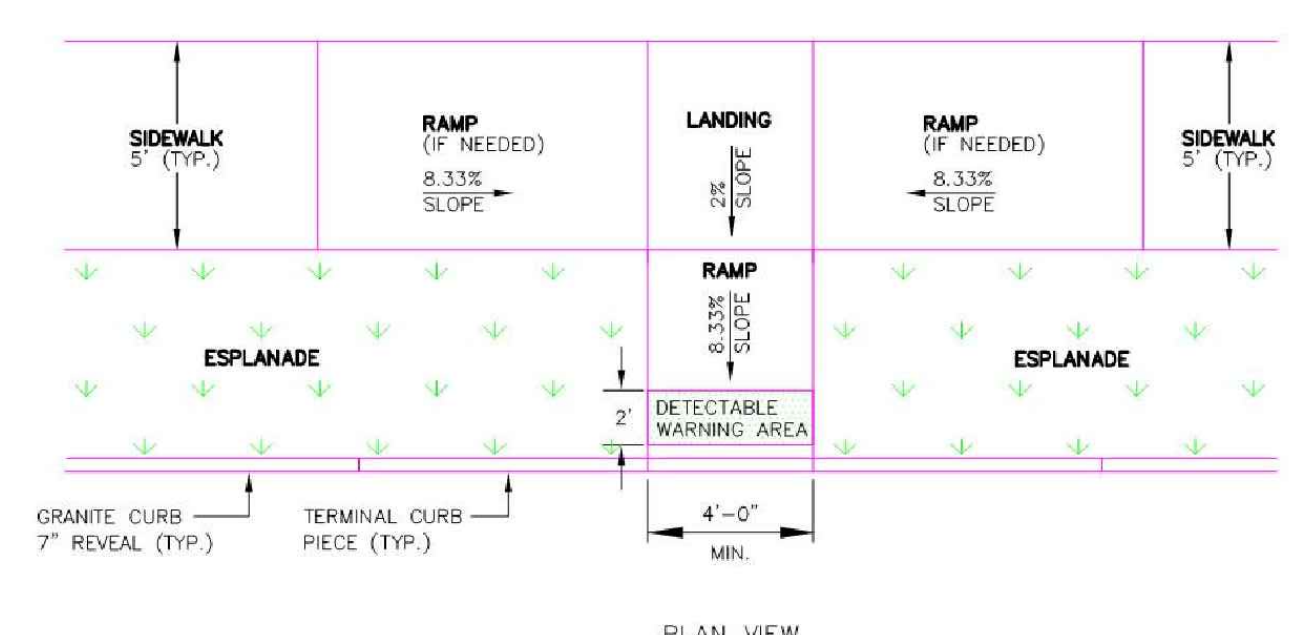


REV	DATE	DESCRIPTION	CHECKED BY	DATE
1	5-15-2020	ISSUED TO CITY COMMENTS	AN	
2	5-15-2020	1. BIDDING PROCESS SET	AN	
3	2-26-20	1. BIDDING PROCESS SET	AN	

REV	DATE	DESCRIPTION	CHECKED BY	DATE
1	5-15-2020	ISSUED TO CITY COMMENTS	AN	
2	5-15-2020	1. BIDDING PROCESS SET	AN	
3	2-26-20	1. BIDDING PROCESS SET	AN	

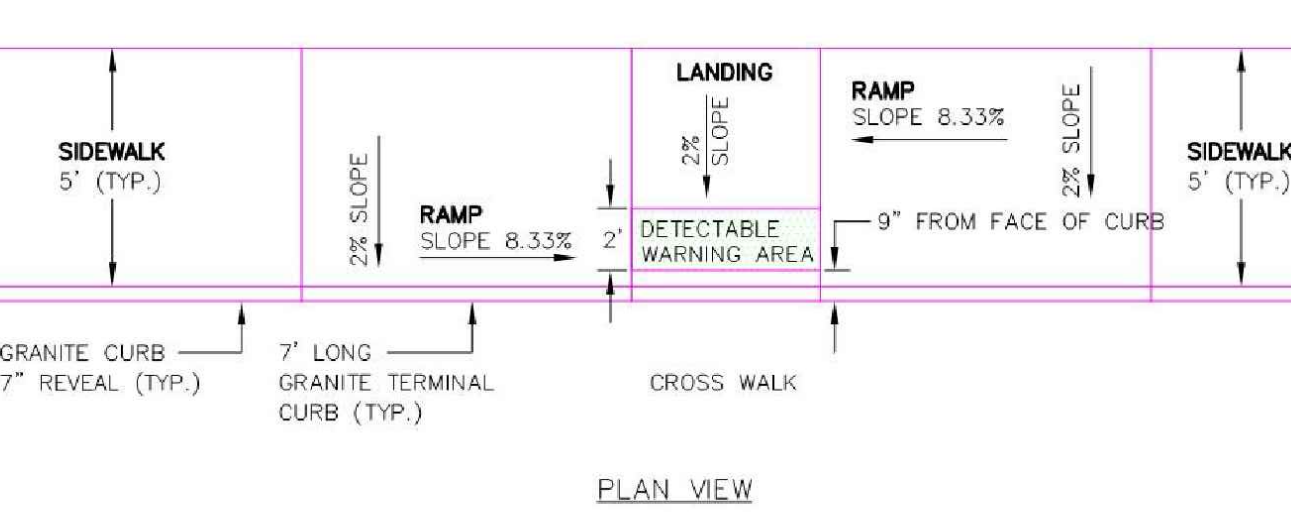
MAINE PORT AUTHORITY PORTLAND, MAINE	CIVIL DETAILS - 3
MAINE PORT AUTHORITY COLD STORAGE FACILITY	
JOB NO: 0232277-00 DATE: MAY 2020 SCALE: AS NOTED SHEET: 9 OF XX	

NOTES:
ALL RAMPS SHALL COMPLY WITH ADA STANDARDS.
GRANITE CURB ADJACENT TO LANDING SHALL BE FLUSH WITH STREET.
SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

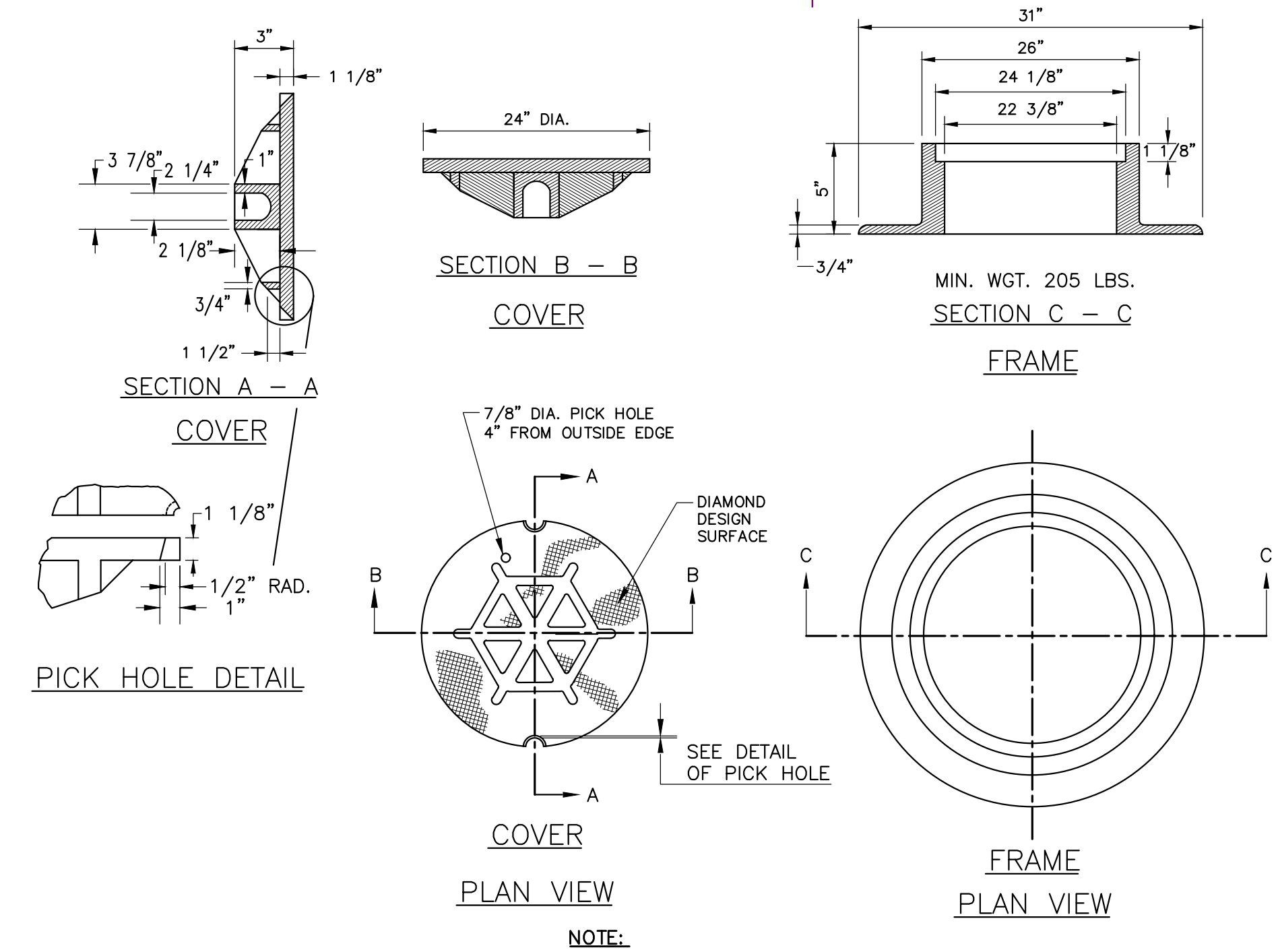


PERPENDICULAR ADA RAMP LAYOUT FOR NARROW SIDEWALK WITH ESPLANADE
NOT TO SCALE

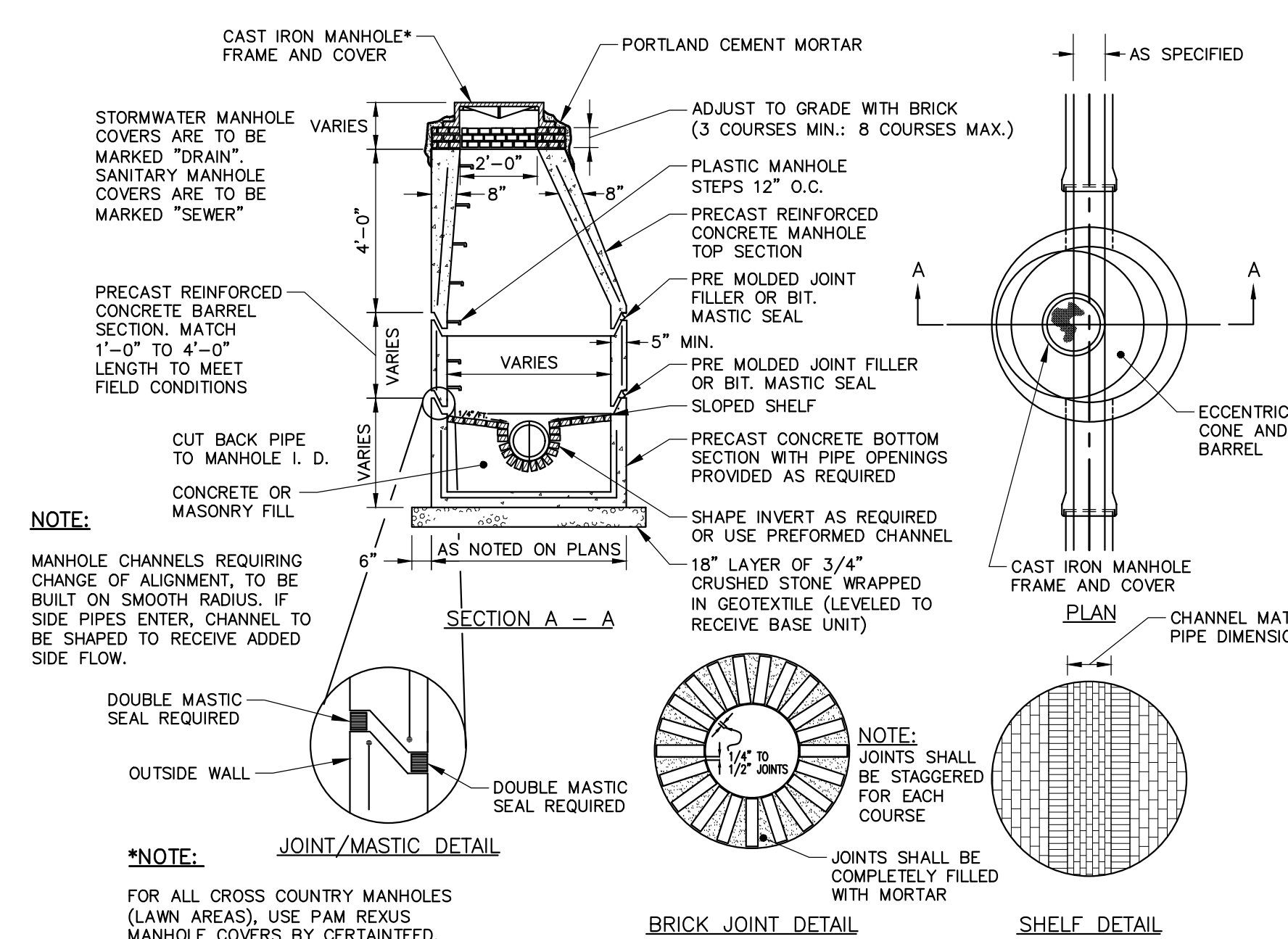
NOTES:
ALL RAMPS SHALL COMPLY WITH ADA STANDARDS.
GRANITE CURB ADJACENT TO LANDING SHALL BE FLUSH WITH STREET.
SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.



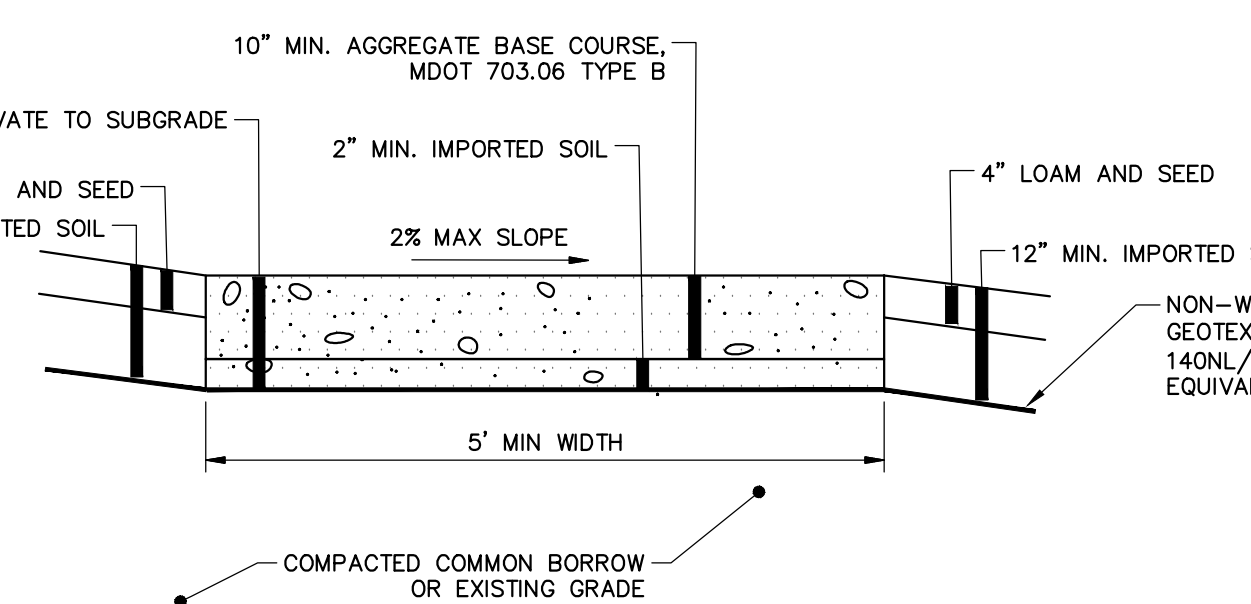
PARALLEL SIDEWALK RAMP LAYOUT FOR NARROW SIDEWALK WITH NO ESPLANADE
NOT TO SCALE



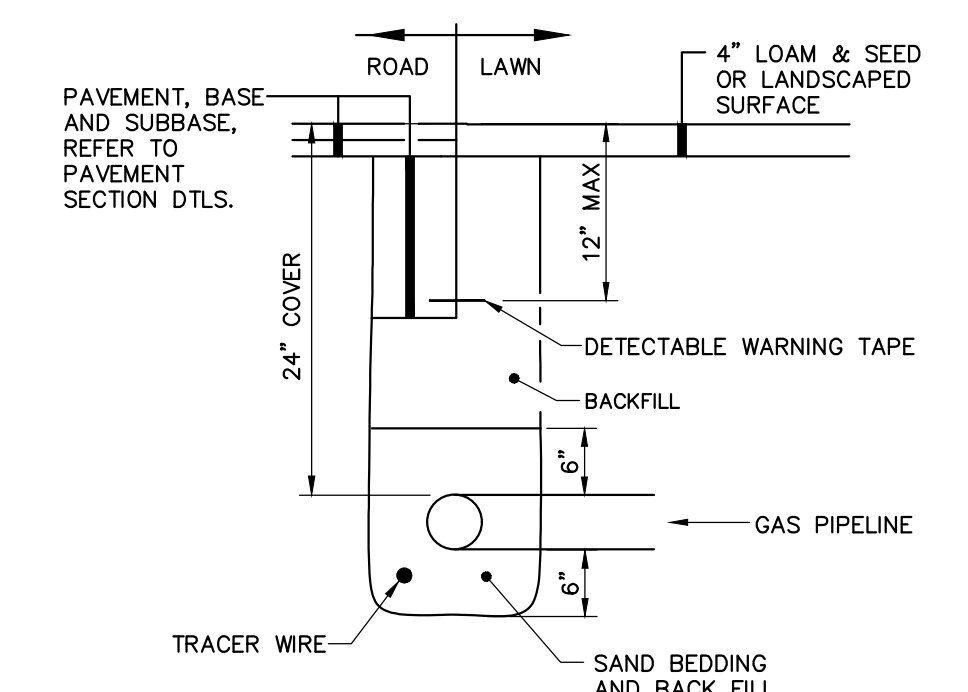
TYPE "A" CAST IRON MANHOLE COVER AND FRAME
N.T.S.



PRECAST CONCRETE MANHOLE
N.T.S.



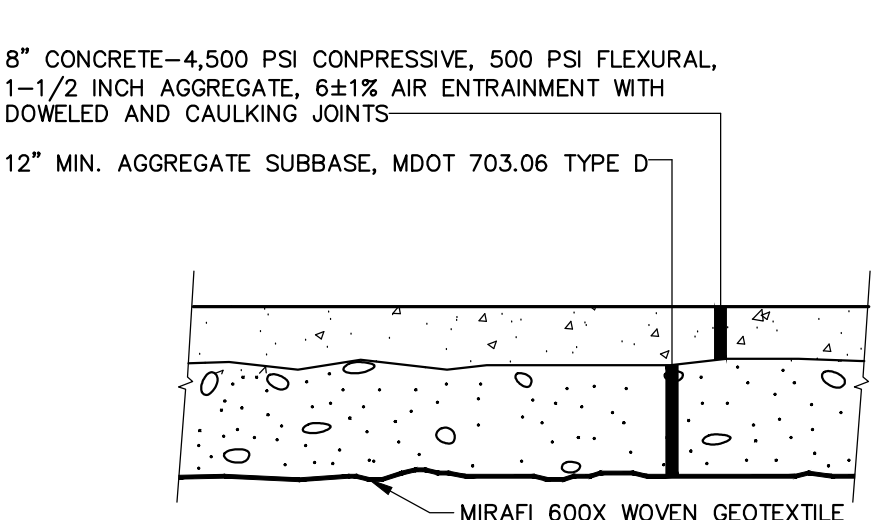
GRAVEL EMERGENCY ACCESS WALKWAY SECTION
NOT TO SCALE



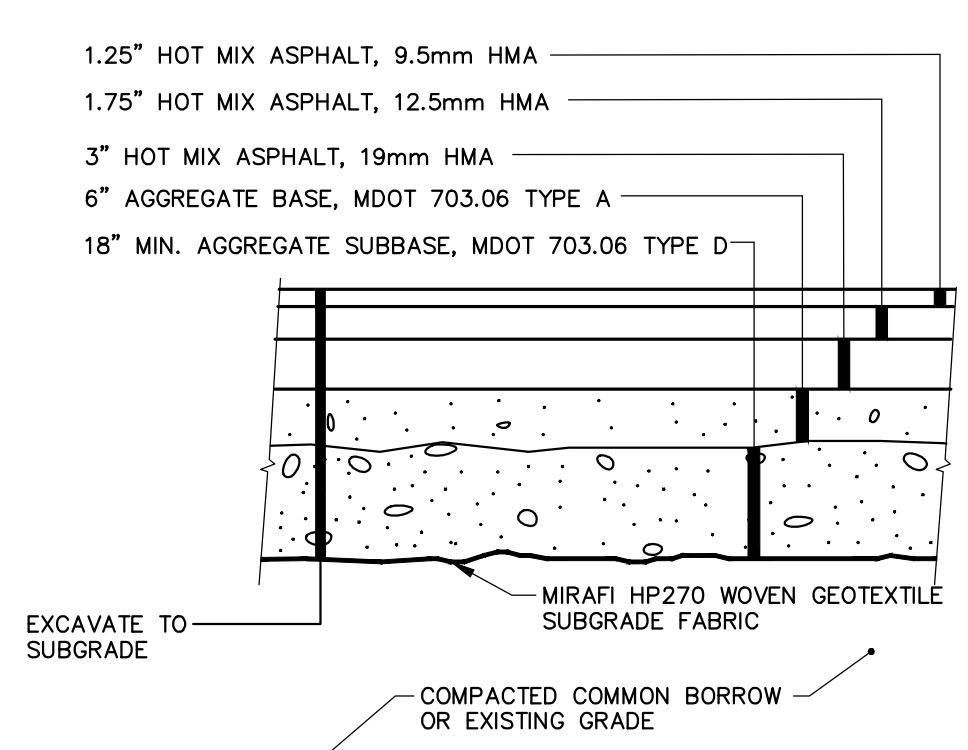
GAS PIPE TRENCH DETAIL
N.T.S.

GENERAL NOTES FOR MANHOLES AND CATCH BASINS

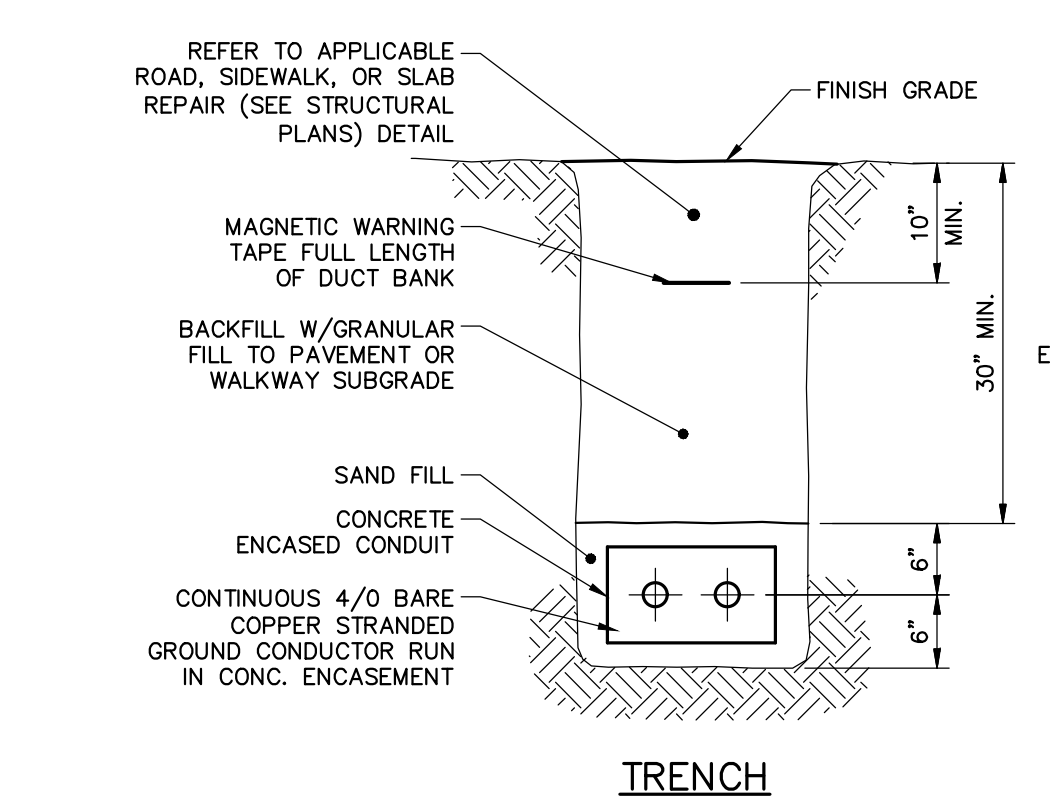
1. ALL CONCRETE SHALL BE CLASS "A" AND HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 LBS. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
3. ALL MANHOLES SHALL HAVE A BITUMINOUS WATERPROOFING APPLIED TO THE EXTERIOR SURFACE. IF CONSTRUCTED OF BRICK MASONRY, SURFACE SHALL BE PLASTERED WITH A SMOOTH MORTAR FINISH 3/8" THICK. AFTER THE MORTAR HAS SET, THE SURFACE SHALL BE WATERPROOFED AS REQUIRED BY SUPPLEMENTAL SPECIFICATIONS SECTION 604.
4. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35. ALL PARTS OF CASTINGS, EXCEPT FINISHED SURFACE, SHALL RECEIVE A COAT OF COAL TAR PITCH VARNISH OR ASPHALTUM PAINT WHICH SHALL BE SMOOTH AND TOUGH BUT NOT BRITTLE.
5. MANHOLES MAY BE CONSTRUCTED OF MASONRY, PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
6. CONTRACTOR SHALL SUBMIT ANTIFLOATATION CALCULATIONS FOR ALL MANHOLE AND CATCH BASIN STRUCTURES.
7. ALL PRECAST MANHOLES AND CATCH BASINS SHALL BE IDENTIFIED BY SITUATION, OFFSET, AND STRUCTURE ID. PAINTED ON THE SIDE OF THE STRUCTURE BY THE MANUFACTURER.
8. STORM AND SEWER MANHOLES SHALL HAVE SOLID COVERS WITH ONE DRILLED PICK HOLE.
9. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF OWNER.
10. WHEN THE FLOW CHANGES DIRECTION IN A MANHOLE, THE CHANNEL ALIGNMENT SHALL FOLLOW A SMOOTH RADIUS. CHANNELS SHALL BE FORMED TO ACCEPT ALL INLET PIPES.
11. ON STORM AND SEWER MANHOLES, THE SHELF AND CHANNEL SHALL BE FORMED BY BRICK SET IN CEMENT MORTAR OR BY FACTORY PRE-CAST CONCRETE. SUCH PRE-CAST CONCRETE SHALL BE EPOXY COATED AND THE SHELF SHALL HAVE A PERMANENT NON-SKID SURFACE.



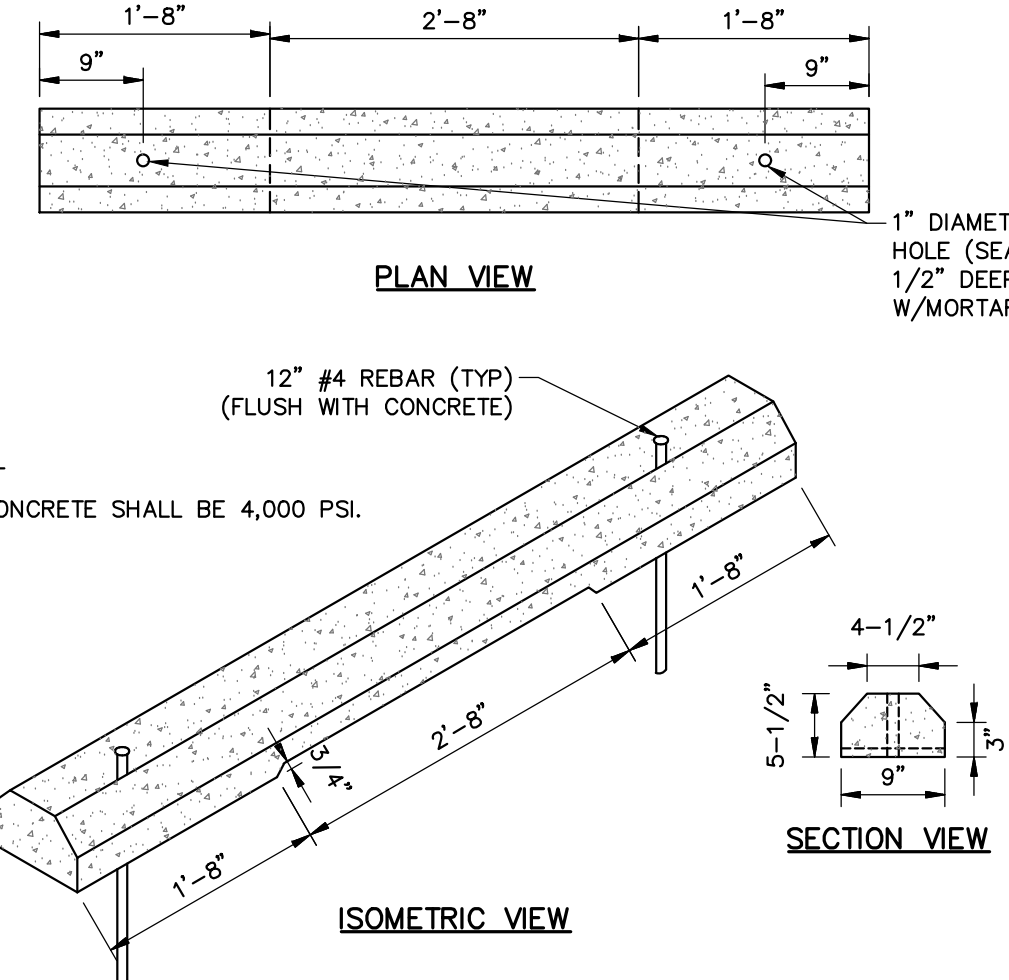
RIGID (CONCRETE) PAVEMENT SECTION FOR TRUCK YARD
N.T.S.



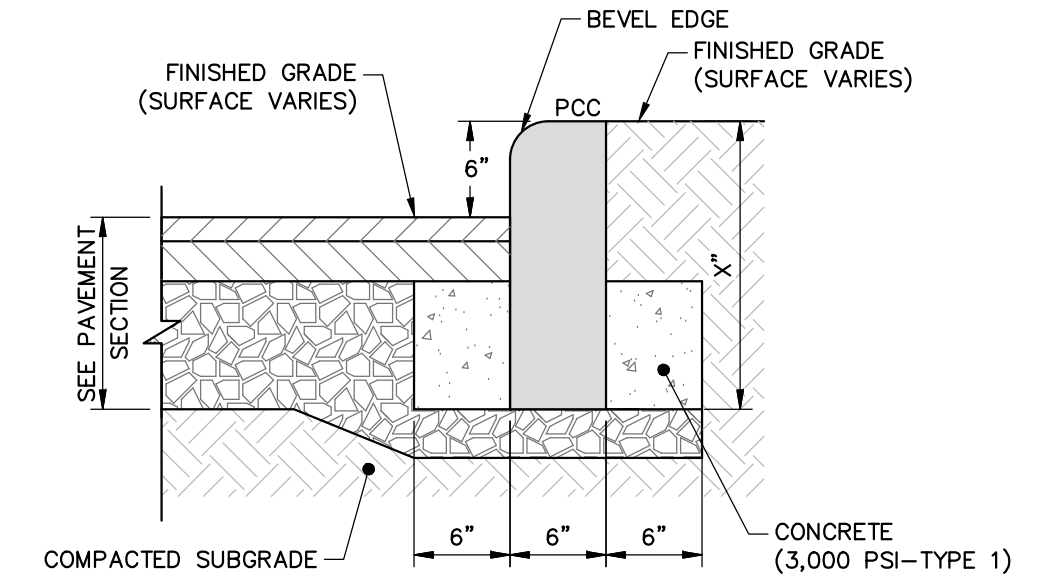
TYPICAL HEAVY DUTY BITUMINOUS PAVEMENT SECTION
N.T.S.



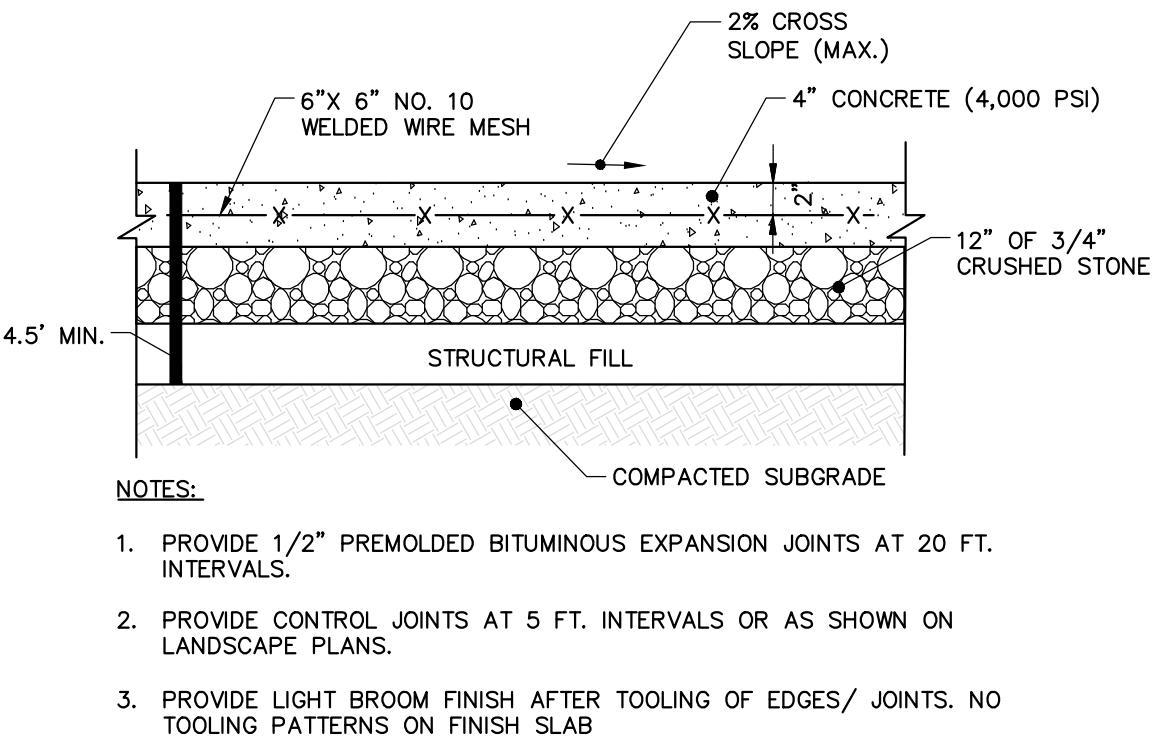
TRENCH BURIED ELECTRICAL CONDUIT DETAIL
N.T.S.



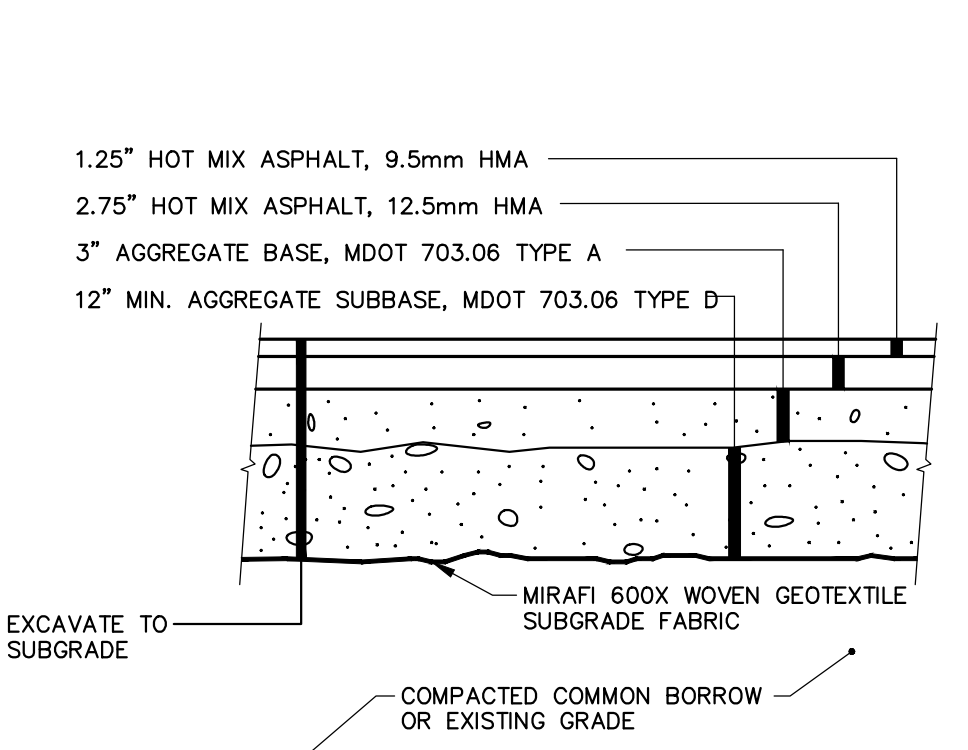
WHEEL STOP DETAIL
N.T.S.



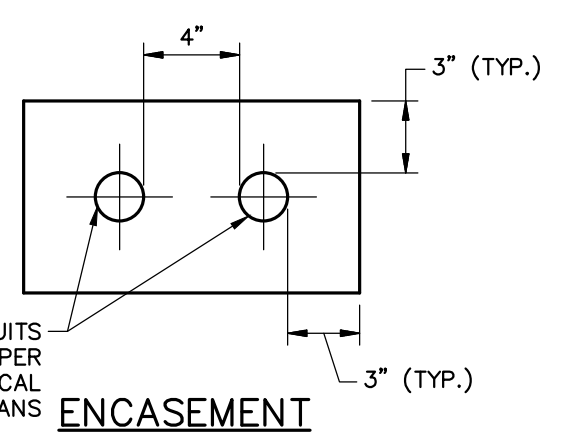
PRECAST CONCRETE CURB (PCC)
N.T.S.



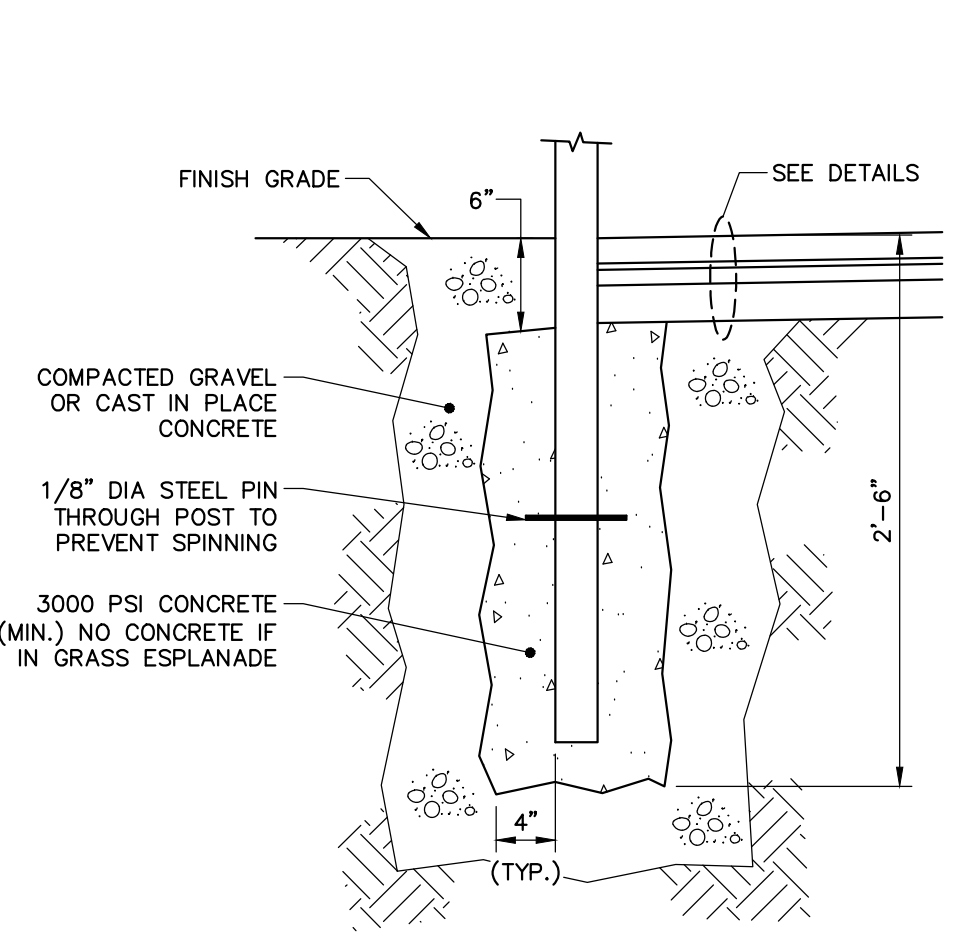
CAST-IN-PLACE CONCRETE SIDEWALK
N.T.S.



TYPICAL STANDARD DUTY BITUMINOUS PAVEMENT SECTION
N.T.S.

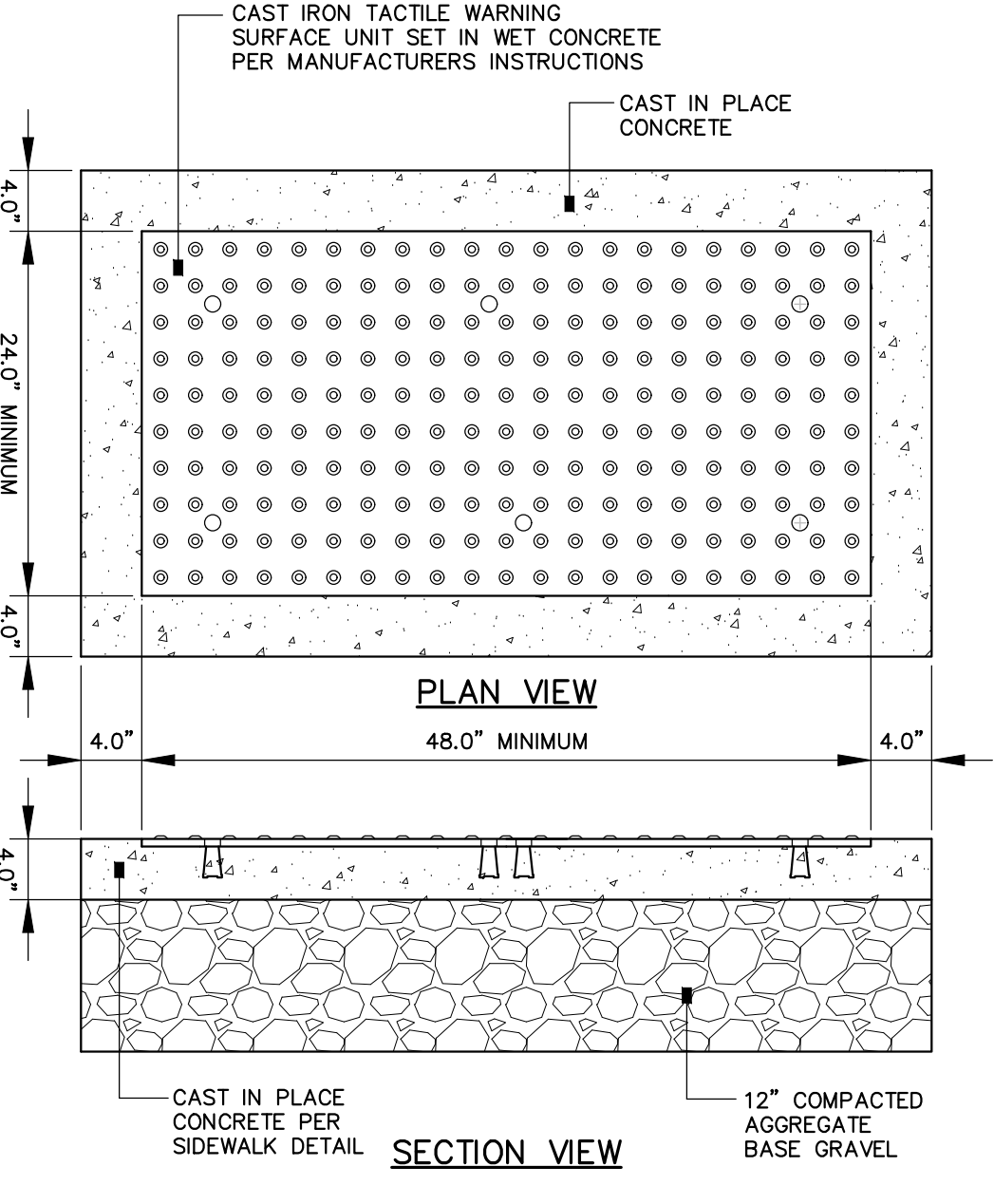


- NOTES:
1. ALL CONDUITS, INCLUDING RISER CONDUITS, NEED TO BE SLOPED TO DRAIN INTO MANHOLES OR TRANSFORMER FOUNDATIONS, 3" PER 100'.
 2. INSTALL A PULLING LINE WITHIN EACH CONDUIT.
 3. CONDUIT SHALL BE SCHEDULE 40 PVC, CONDUIT SWEEPS SHALL BE MIN. 48" RADIUS RIGID GALV. STEEL.

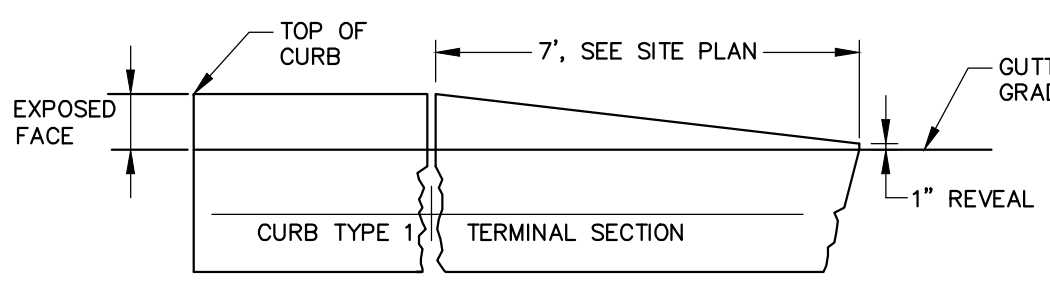


POST SPECIFICATION		
TYPE	HEIGHT ABOVE FIN. GRADE	POST MATERIAL
STREET SIGNAGE	7'-0"	GALV. STEEL

TYPICAL SIGN POST DETAIL
N.T.S.



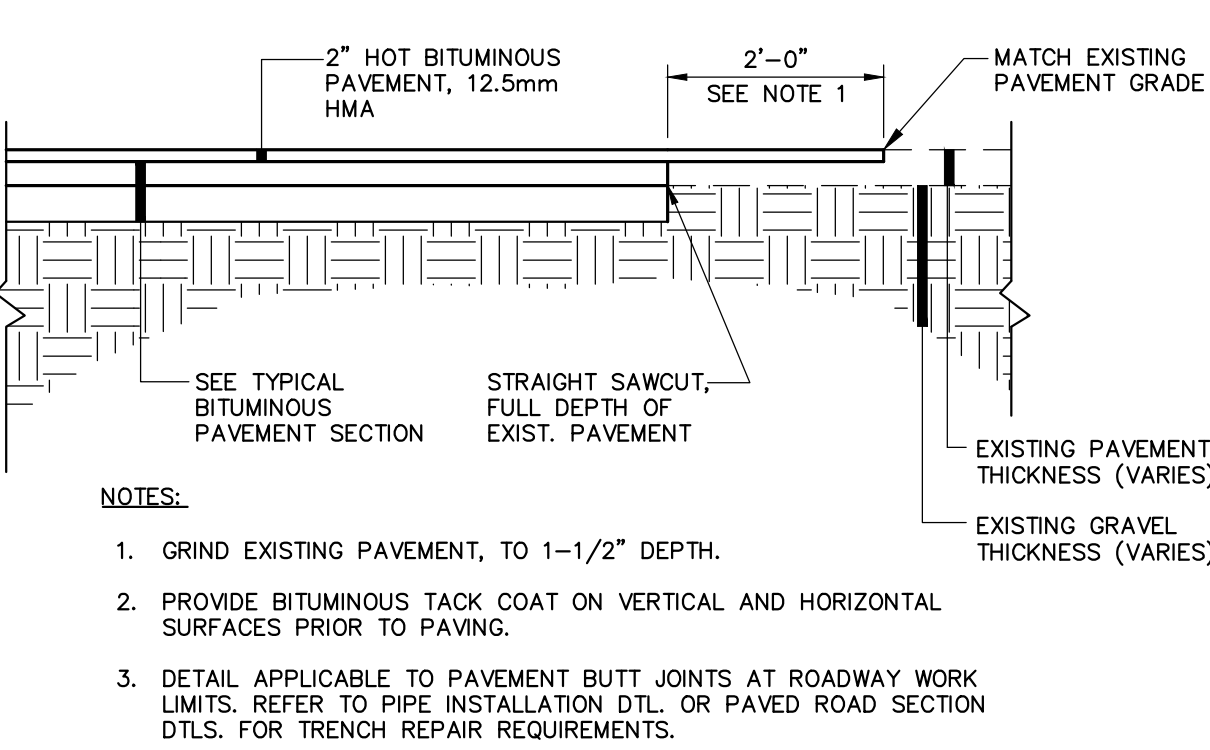
SIDEWALK RAMP DETECTABLE WARNING
N.T.S.



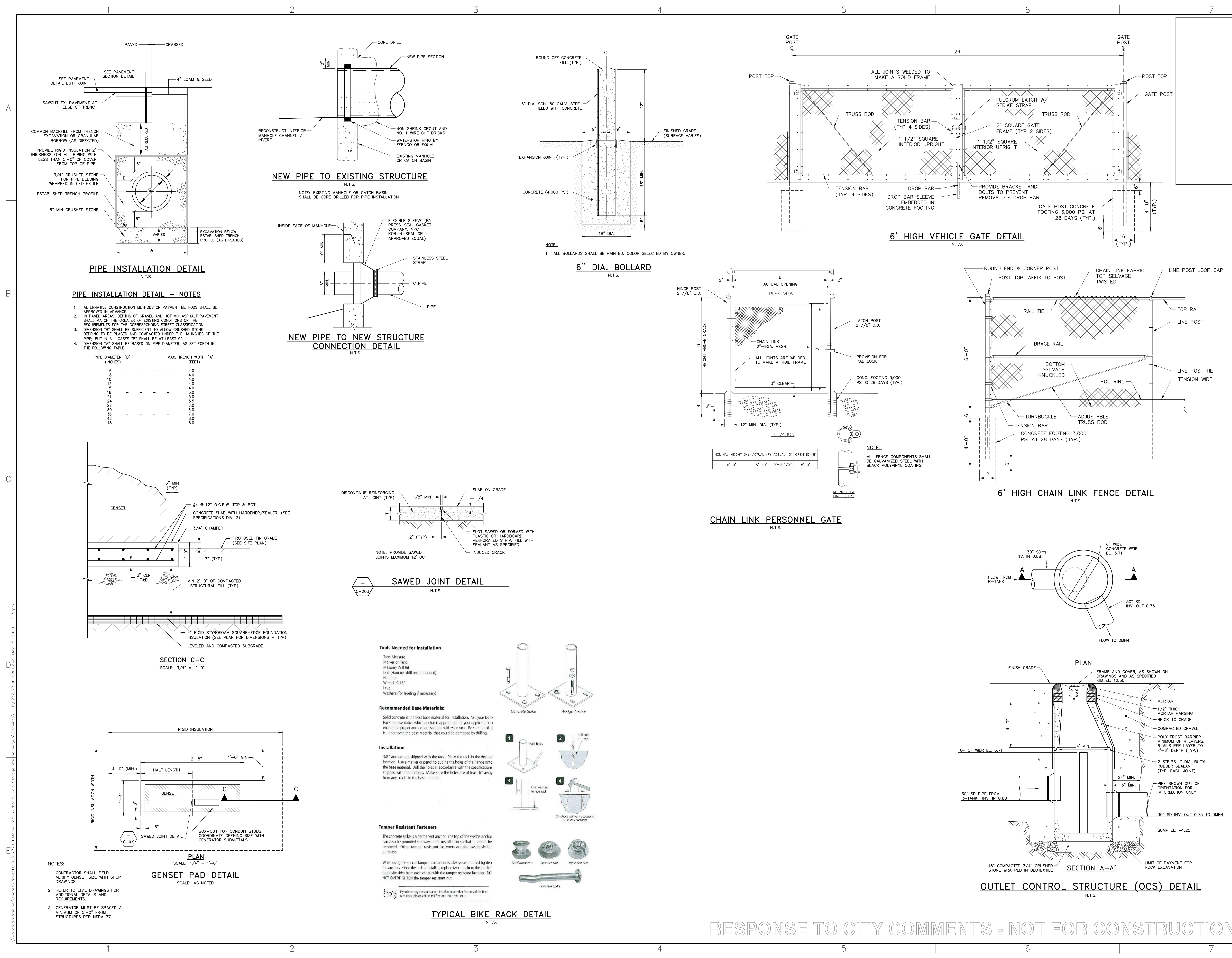
TERMINAL CURB SECTION
N.T.S.



CROSSWALK WITH LONGITUDINAL LINES
N.T.S.



PAVEMENT BUTT JOINT DETAIL
N.T.S.



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COMMITMENT & INTEGRITY DRIVE RESULTS

MAINE STATE SEAL

MAINE
SEAL
NO. 15118
PROFESSIONAL ENGINEER
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REV	DESCRIPTION	DATE	BY	CHKD
1	ISSUANCE TO CITY COMMENTS	5-15-2020		
2	1. BID DRAWING PROCESS SET	3-26-20		

DESIGNED BY: ANL
DRAWN BY: SCW/VP
CHECKED BY: DS
DATE: 03/27/20

CIVIL DETAILS - 4

MAINE PORT AUTHORITY
PORTLAND, MAINE

MAINE PORT AUTHORITY
COLD STORAGE FACILITY

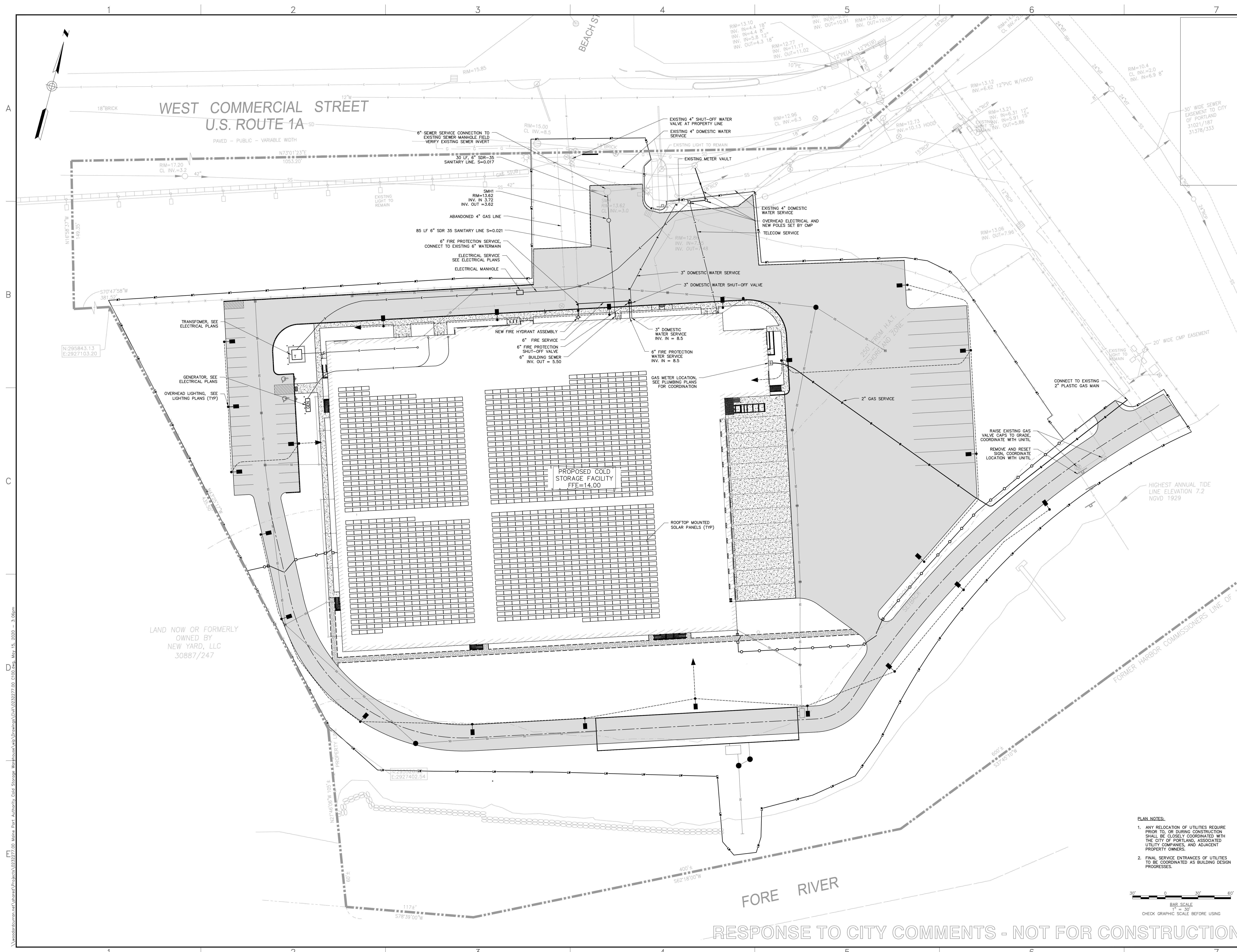
JOB NO: 0232277-00
DATE: MAY 2020
SCALE: AS NOTED
SHEET: 10 OF XX

C-203

[illegible]

Year	All people (%)	Men (%)	Women (%)
1980	70	68	72
1985	72	70	74
1990	74	72	76
1995	76	74	78
2000	78	76	80
2005	80	78	82
2010	85	83	87





PLAN NOTES:

1. ANY RELOCATION OF UTILITIES REQUIRE PRIOR TO OR DURING CONSTRUCTION SHALL BE CLOSELY COORDINATED WITH THE CITY OF PORTLAND, ASSOCIATED UTILITY COMPANIES, AND ADJACENT PROPERTY OWNERS.
2. FINAL SERVICE ENTRANCES OF UTILITIES TO BE COORDINATED AS BUILDING DESIGN PROGRESSES.

BAR SCALE
1" = 30'
CHECK GRAPHIC SCALE BEFORE USING

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**WOODARD
& CURRAN**

COMMITMENT & INTEGRITY DRIVE RESULTS

MAINE PORT AUTHORITY
PORTLAND, MAINE

MAINE PORT AUTHORITY
COLD STORAGE FACILITY

JOB NO: 0232277.00
DATE: MAY 2020
SCALE: AS NOTED
SHEET: 6 OF XX

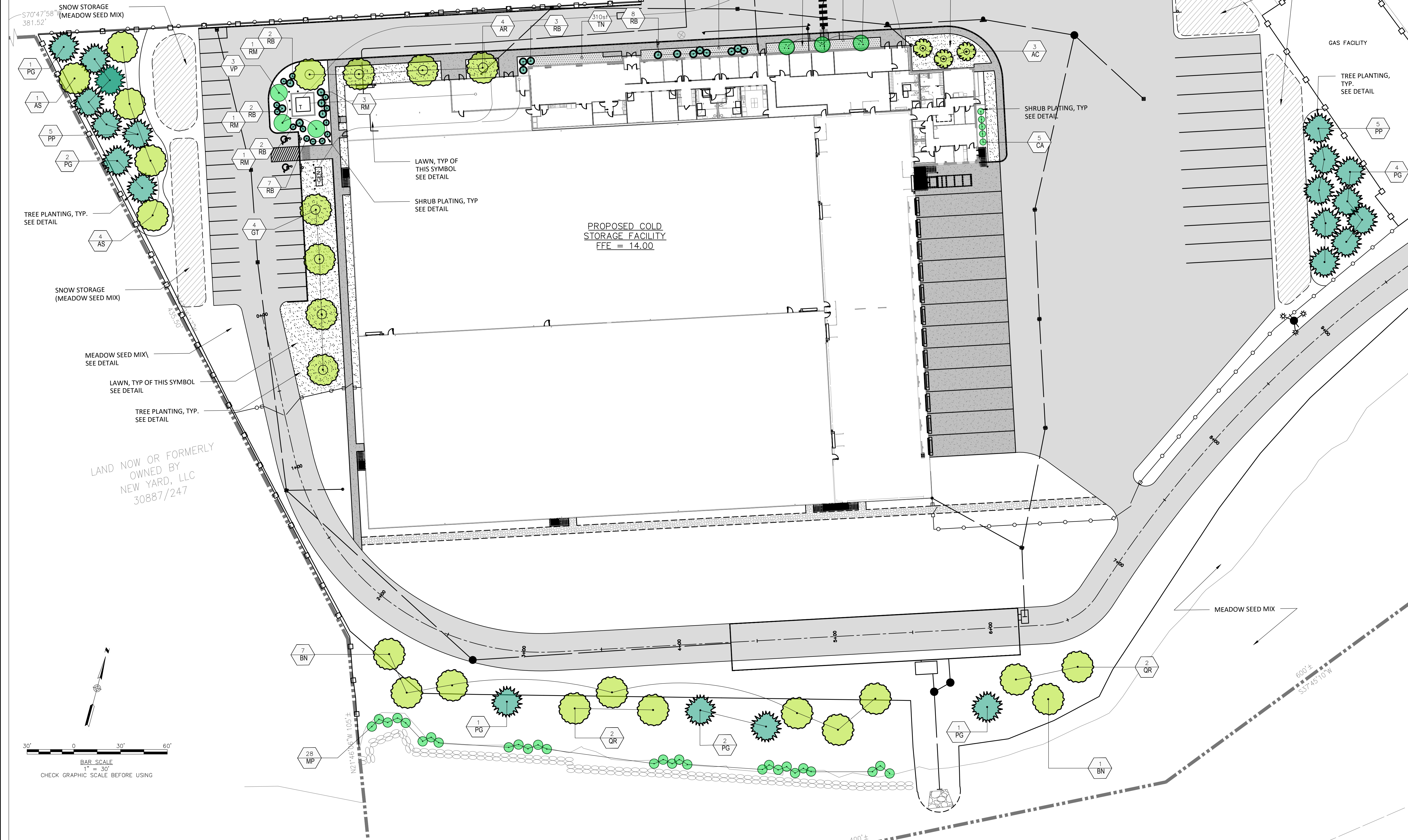
C-102

UTILITY PLAN

REV	DATE	DESCRIPTION	BY	CHECKED BY
1	5-15-2020	ISSUANCE TO CITY COMMENTS		
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100	5-15-2020	ISSUANCE TO CITY COMMENTS		

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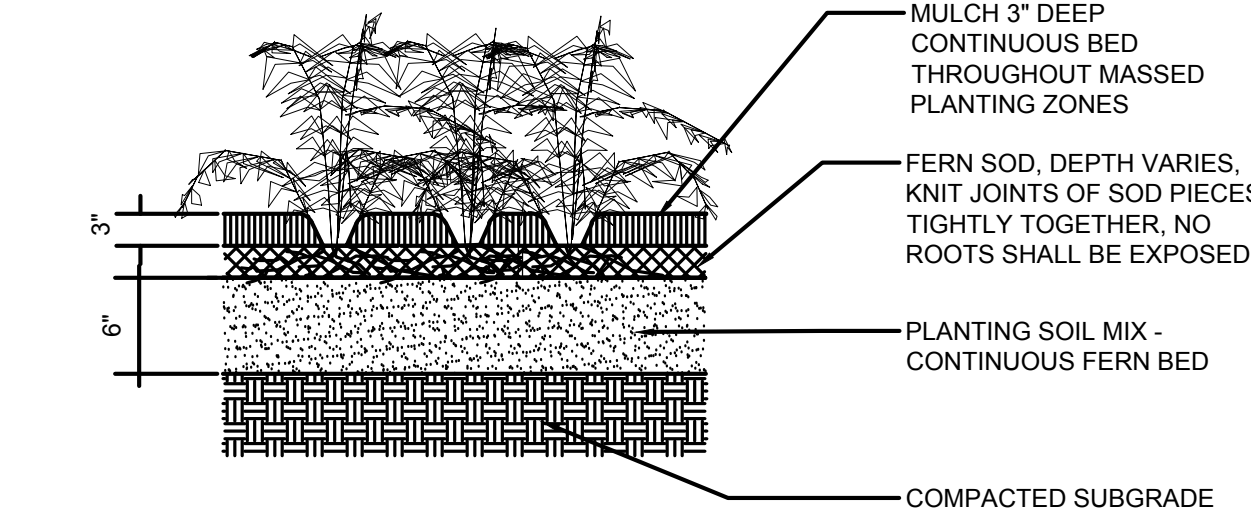
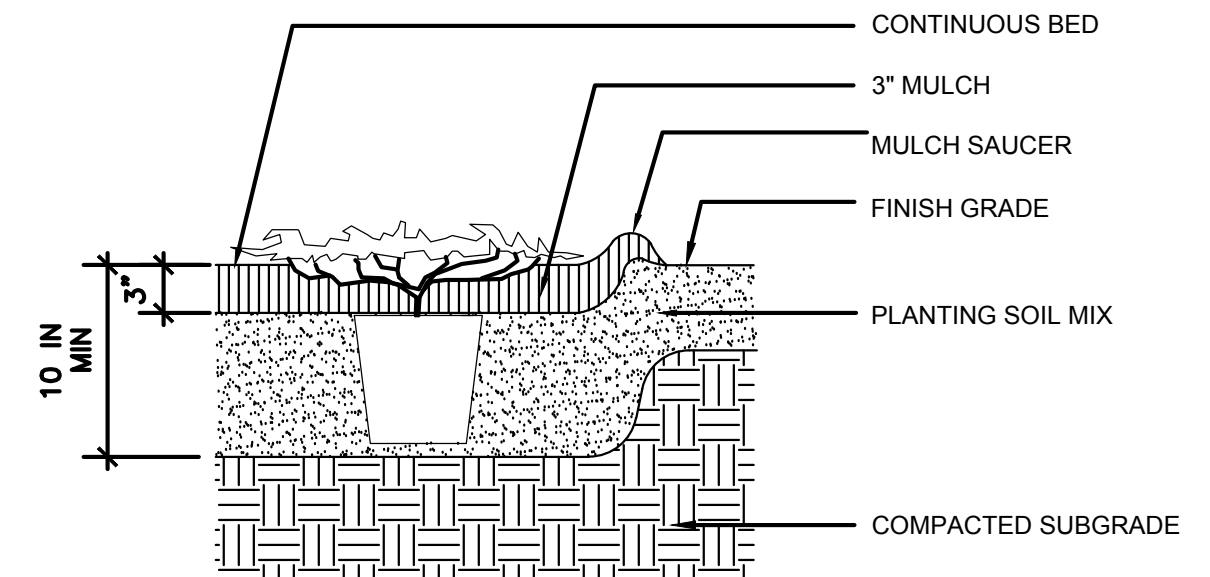
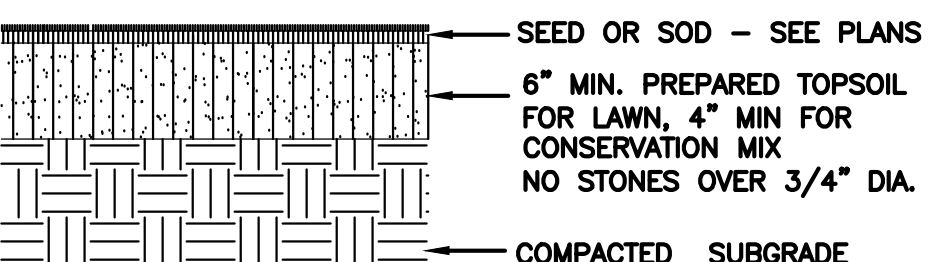
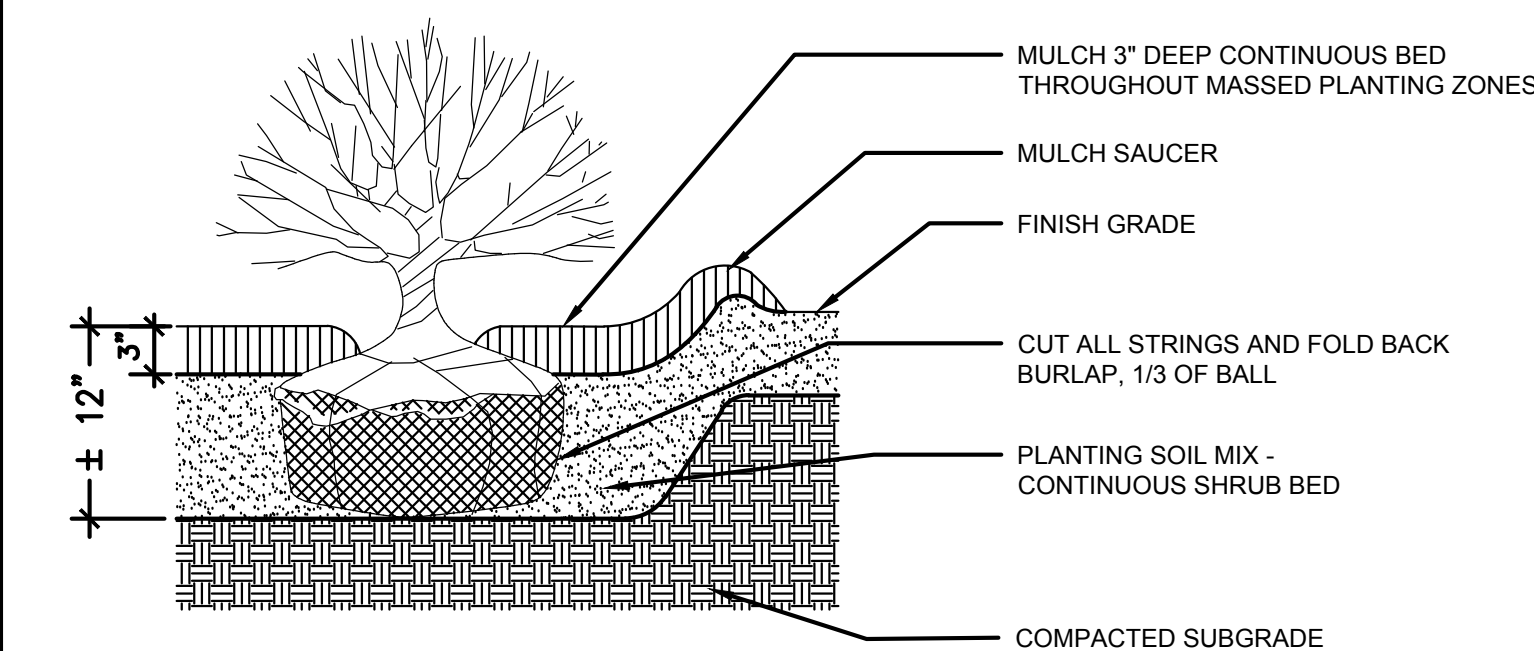
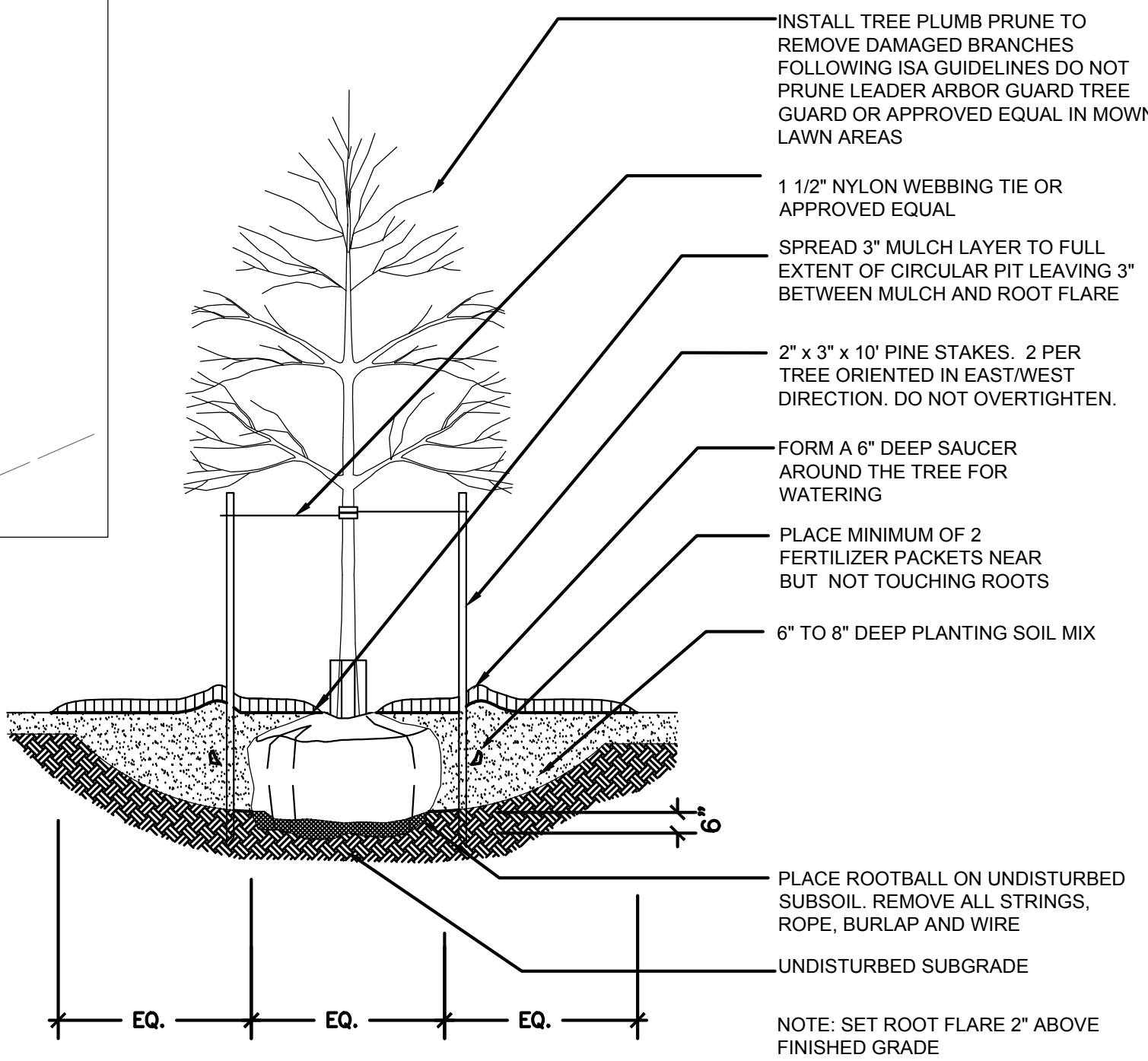
PLANT SCHEDULE - STREET TREES				
QUANT.	SYM.	BOTANICAL NAME	COMMON NAME	SIZE
3	AC	AMELANCHIER CANADENSIS AUTUMN BRILLIANCE	SHADBLOW	6-7' MULTI, B&B
5	AS	ACER SACCHARUM	SUGAR MAPLE	3"-3.5" CAL, B&B
4	AR	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	3"-3.5" CAL, B&B
11	BN	BETULA NIGRA	RIVER BIRCH	8-10' MULTI, B&B
5	CA	CLETHRA ALNIFOLIA 'RUBY SPICE'	SUMMER SWEET	#7 CONT
4	GT	GLEDITSIA TRIACANTHOS F. INERMIS	THORNLESS HONEYLOCUST	3"-3.5" CAL, B&B
37	MP	MYRICIA PENNSYLVANICA	NORTHERN BAYBERRY	3.5"-4" HT, B&B
24	PV	PANICUM VIRGATUM 'NORTHWIND'	SWITCH GRASS	#2 CONT
11	PG	PICEA GLAUCA	WHITE SPRUCE	7-8' HT., B&B
10	PP	PINUS PARVIFLORA 'GLAUCA'	JAPANESE WHITE PINE	7-8' HT., B&B
19	RA	RHUS AROMATICA 'GRO-LOW'	FRAGRANT SUMAC	#3 CONT
24	RB	RHODODENDRON 'BOULE DE NEIGE'	RHODODENDRON	2.5'-3' HT., CONT
6	RM	RHODODENDRON MAXIMUM 'ROSEUM'	RHODODENDRON	3.5'-4' HT, CONT
29	SS	SCHIZACHYRIUM SCOPARIUM 'PRAIRIE BLUES'	BLUE STEM	#2 CONT
1,065 SF	TN	THELYPTERIS NOVEBORACENSIS	NEW YORK FERN	SOD
3	VP	VIBURNUM PLICATUM F. TOMENTOSUM 'SHASTA'	DOUBLEFILE VIBURNUM	3.5"-4" HT, CONT
4	QR	QUERCUS RUBRA	RED OAK	3"-3.5" CAL, B&B



PLANTING NOTES

- CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND SHALL CONTINUE UNTIL FINAL ACCEPTANCE BY OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF WATERING AND MAINTENANCE.
- CONTRACTOR SHALL SUPPLY PLANTS IN QUANTITIES SUFFICIENT TO COMPLETE WORK SHOWN ON THE PLAN. ANY DISCREPANCY BETWEEN THE QUANTITIES SHOWN IN THE PLANT SCHEDULE AND THOSE REQUIRED ON THE PLAN SHALL NOT ENTITLE THE CONTRACTOR TO ADDITIONAL REMUNERATION. ANY DISCREPANCIES SHALL BE CLARIFIED WITH THE LANDSCAPE ARCHITECT PRIOR TO ORDERING PLANT MATERIAL.
- ALL MATERIALS SHALL CONFORM TO SPECIFICATIONS OF THE AMERICAN STANDARDS FOR NURSERY STOCK (LATEST EDITION) AS SET FORTH BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS THE ORIGINAL GRADES BEFORE DIGGING.
- THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF SUBSTANTIAL COMPLETION.
- ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT AT THE NURSERY AND AT THE SITE.
- ALL PLANT BEDS SHALL MEET MINIMUM TOPSOIL REQUIREMENTS (SEE SPECIFICATIONS + NOTE #19 BELOW).
- NO PLANT MATERIAL SHALL BE INSTALLED UNTIL GRUBBING, BED PREPARATION, AND FINISH GRADING HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
- ALL PLANTS BEDS AND TREE WELLS SHALL HAVE A MINIMUM OF 3" OF UNIFORMLY DISTRIBUTED, DARK, SHREDDED BARK MULCH. ALL SHRUBS BED SHALL BE CONTINUOUS (WITH PLANTING SOIL MIX AND BARK MULCH).
- CONTRACTOR SHALL SUBMIT SOIL SAMPLE AND TEST OF TOPSOIL TO LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. SOIL ADMXTURE SHALL BE ADDED TO EXISTING SOIL (BY CONTRACTOR) IF DEEMED NECESSARY BY SOIL TEST RESULTS.
- ROUGH GRADING AND BED PREPARATION SHALL BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO PLANT INSTALLATION. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT 48 HOURS PRIOR TO REQUIRED SITE VISIT.
- ALL PLANTS SHALL BE BALLED AND WRAPPED OR CONTAINER GROWN AS SPECIFIED. ALL ROOT WRAPPING AND CONTAINER MATERIAL MADE OF SYNTHETICS OR PLASTICS SHALL BE REMOVED AT THE TIME OF PLANTING.
- ALL BROAD LEAF EVERGREEN PLANTS SHALL BE SPRAYED WITH AN ANTI-DESSICANT AT THE BEGINNING OF THEIR FIRST WINTER.
- ALL PLANTS SHALL BE INSTALLED AS PER DETAILS AND THE CONTRACT SPECIFICATIONS. THE LANDSCAPE CONTRACTOR SHALL REFER TO THE CONTRACT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- CONTRACTOR SHALL STAKE TREES.
- THE LANDSCAPE CONTRACTOR SHALL PROVIDE TOPSOIL FILL AS PER THE CONTRACT SPECIFICATIONS + NOTE #19.
- ALL PLANTS SHALL BE WATERED BY THE CONTRACTOR, AS NECESSARY TO INSURE HEALTH UNTIL FINAL ACCEPTANCE.
- THE LANDSCAPE CONTRACTOR SHALL REFER TO THE PLANT LIST AND PLANTING SPECIFICATIONS FOR SEASONAL REQUIREMENTS AND OTHER RESTRICTIONS RELATED TO THE TIME AND SEASON OF PLANTING.
- PLANTING SOIL MIX: 1 PART COMPOST, 8 PARTS TOPSOIL, 3 PARTS HUMUS.
TOPSOIL: FERTILE, FRIABLE, NATURAL TOPSOIL OF LOAMY CHARACTER, WITHOUT ADMXTURE OF SUBSOIL MATERIAL, FREE FROM CLAY, LUMPS, COARSE SANDS, STONES, PLANTS, ROOTS, STICKS, AND OTHER FOREIGN MATERIALS GREATER THAN 1" IN ANY DIMENSION, PH RANGE 5.0-7.0, AND SHALL CONTAIN NOT LESS THAN 6% ORGANIC MATTER BY WEIGHT.
SANDY LOAM OR LOAM SOIL AS DEFINED BY THE USDA SOIL CONSERVATION SERVICE, AND HAVE THE FOLLOWING MECHANICAL ANALYSIS:

TEXTURAL CLASS	% OF TOTAL WEIGHT	AVERAGE %
SAND (0.05-2.0 MM)	45 TO 75%	60%
SILT (0.002-0.05 MM)	15 TO 35%	25%
CLAY (< 0.002 MM)	5 TO 25%	15%



- 2 SHRUB PLANTING
SCALE: N.T.S.
- 3 LAWN
SCALE: N.T.S.
- 4 GROUND COVER PLANTING
SCALE: N.T.S.
- 5 FERN SOD
SCALE: N.T.S.
- 1 TREE PLANTING
SCALE: N.T.S.

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COMMITMENT & INTEGRITY DRIVE RESULTS

LANDSCAPE ARCHITECT
PATRICK J. CARROLL
NO. 127
STATE OF MAINE

REV	DESCRIPTION	DATE	BY	CHECKED BY
1	RESPONS TO CITY COMMENTS	5.13.2020	EPK	EPK

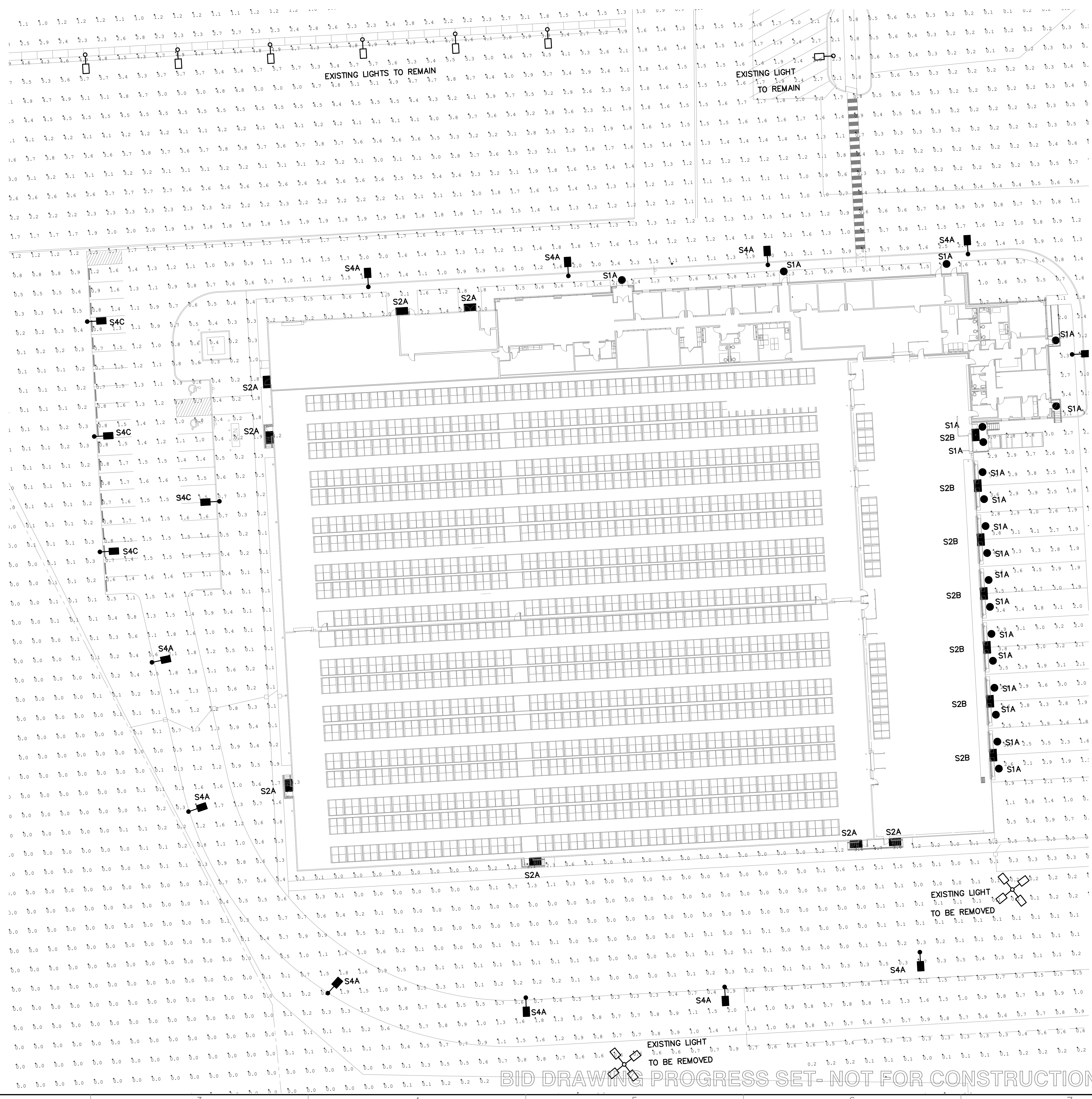
LANDSCAPE PLAN

MAINE PORT AUTHORITY
PORTLAND, MAINE

MAINE PORT AUTHORITY
COLD STORAGE FACILITY

JOB NO.: 0232277.00
DATE: FEBRUARY 2020
SCALE: AS NOTED
SHEET: 1 OF XX.1

L-1.0



1. ALL PROPOSED LIGHTS HAVE "CUT-OFF" OPTICS.

2. PROPOSED LIGHTING FIXTURES:

TYPE S1A: BEACON LIGHTING # SRT1-20-3K8-5QW-UNV-GYS-CD-SRT1WG
DOWNLIGHT MOUNTED ON UNDERSIDE OF CANOPY

TYPE S2A: BEACON LIGHTING # SG1-20-3K7-FT-UNV-GYS-SCP-20F
WALL LIGHT MOUNTED AT 3-FEET ABOVE PERSONNEL DOORS; AND AT
16-FEET ABOVE GRADE AT THE TRANSFORMER/GENERATOR YARD

TYPE S2B: KIM LIGHTING # WDM-D-48L-85-3K7-FTD-UNV
WALL LIGHT MOUNTED AT 30 FEET ABOVE GRADE

TYPE S3A: NOT USED

TYPE S4A: BEACON LIGHTING # VPS-24L-55-3K7-3-UNV-MAF-GYS-7PR-TL (LUMINAIRE)
BEACON LIGHTING # SB1-24"-PT20-GYS (BRACKET ARM)
BEACON LIGHTING # RTA-B-18-50-A-TA-XX-GYS-VMZ (POLE)
AREA POLE LIGHT WITH AN IES TYPE 3 DISTRIBUTION PATTERN AND WITH
24-INCH BRACKET ARM MOUNTED ON A 18-FOOT TALL TAPERED
ALUMINUM POLE WITH A 6-INCH EXPOSED CONCRETE FOUNDATION BASE
LUMINAIRE TO BE DIMMED AT 70% LIGHT OUTPUT

TYPE S4B: NOT USED

TYPE S4C: BEACON LIGHTING # VPS-24L-55-3K7-4W-UNV-MAF-GYS-7PR-TL (LUMINAIRE)
BEACON LIGHTING # SB1-24"-PT20-GYS (BRACKET ARM)
BEACON LIGHTING # RTA-B-16-50-A-TA-XX-GYS-VMX (POLE)
AREA POLE LIGHT WITH AN IES TYPE 4W DISTRIBUTION PATTERN AND WITH
30-INCH BRACKET ARM MOUNTED ON A 16-FOOT TALL TAPERED
ALUMINUM POLE WITH A 30-INCH EXPOSED CONCRETE FOUNDATION BASE
LUMINAIRE TO BE DIMMED AT 70% LIGHT OUTPUT

TYPE S4D: BEACON LIGHTING # VPL-96L-395-3K7-4W-UNV-MAF-CYS-7PR-TL (LUMINAIRE)
VALMONT LIGHTING # R-1MA08332S-27084580574-DNA-204 (POLE AND ARM)
AREA POLE LIGHT WITH AN IES TYPE 4W DISTRIBUTION PATTERN MOUNTED ON
A 30-FOOT TALL TAPERED ALUMINUM WITH AN ATTACHED 8-FOOT BRACKET
ARM AND WITH A 48-INCH EXPOSED CONCRETE FOUNDATION BASE

TYPE S4E: BEACON LIGHTING # VPL-96L-315-3K7-4W-UNV-MAF-GYS-7PR-TL (LUMINAIRE)
VALMONT LIGHTING # R-1MA08332S-27084580574-DNA-204 (POLE AND ARM)
AREA POLE LIGHT WITH AN IES TYPE 4W DISTRIBUTION PATTERN MOUNTED ON
A 30-FOOT TALL TAPERED ALUMINUM WITH AN ATTACHED 8-FOOT BRACKET
ARM AND WITH A 48-INCH EXPOSED CONCRETE FOUNDATION BASE

3. ALL PROPOSED LIGHTING FIXTURES UTILIZE 3K LED LAMPS.

TYPE S1A: 21.6 WATTS 2,846 LUMENS

TYPE S2A: 21.0 WATTS 1,424 LUMENS

TYPE S2B: 88.0 WATTS 9,643 LUMENS (6,268 LUMENS)*

*ALL TO BE DIMMED TO 65% OUTPUT

TYPE S4A: 55.0 WATTS 5,492 LUMENS (2,746 LUMENS)* (4,119 LUMENS)*
*FRONT DRIVE LIGHTS TO BE DIMMED TO 50% OUTPUT

*REAR DRIVE LIGHTS TO BE DIMMED TO 75% OUTPUT

TYPE S4C: 55.0 WATTS 5,492 LUMENS (3,844 LUMENS)*
*PARKING LOT LIGHTS TO BE DIMMED TO 70% OUTPUT

TYPE S4D: 395 WATTS 30 400 LUMENS

TYPE S4E: 315 WATTS 25 013 LUMENS

4. EXTERIOR LIGHTS WILL OPERATE CONTINUOUSLY DUSK-TO-DAWN (CONTROLLED BY PHOTOCELL) TO FACILITATE 24-HOUR OPERATIONS.



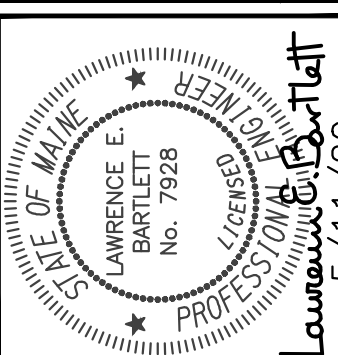
A horizontal number line with tick marks at 20', 0, 20', and 40'.

BAR SCALE

$$1'' = 20'$$

CHECK GRAPHIC SCALE BEFORE USING

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[illegible]

SITE LIGHTING ILLUMINANCE CALCULATION - PART 1

MAINE PORT AUTHORITY

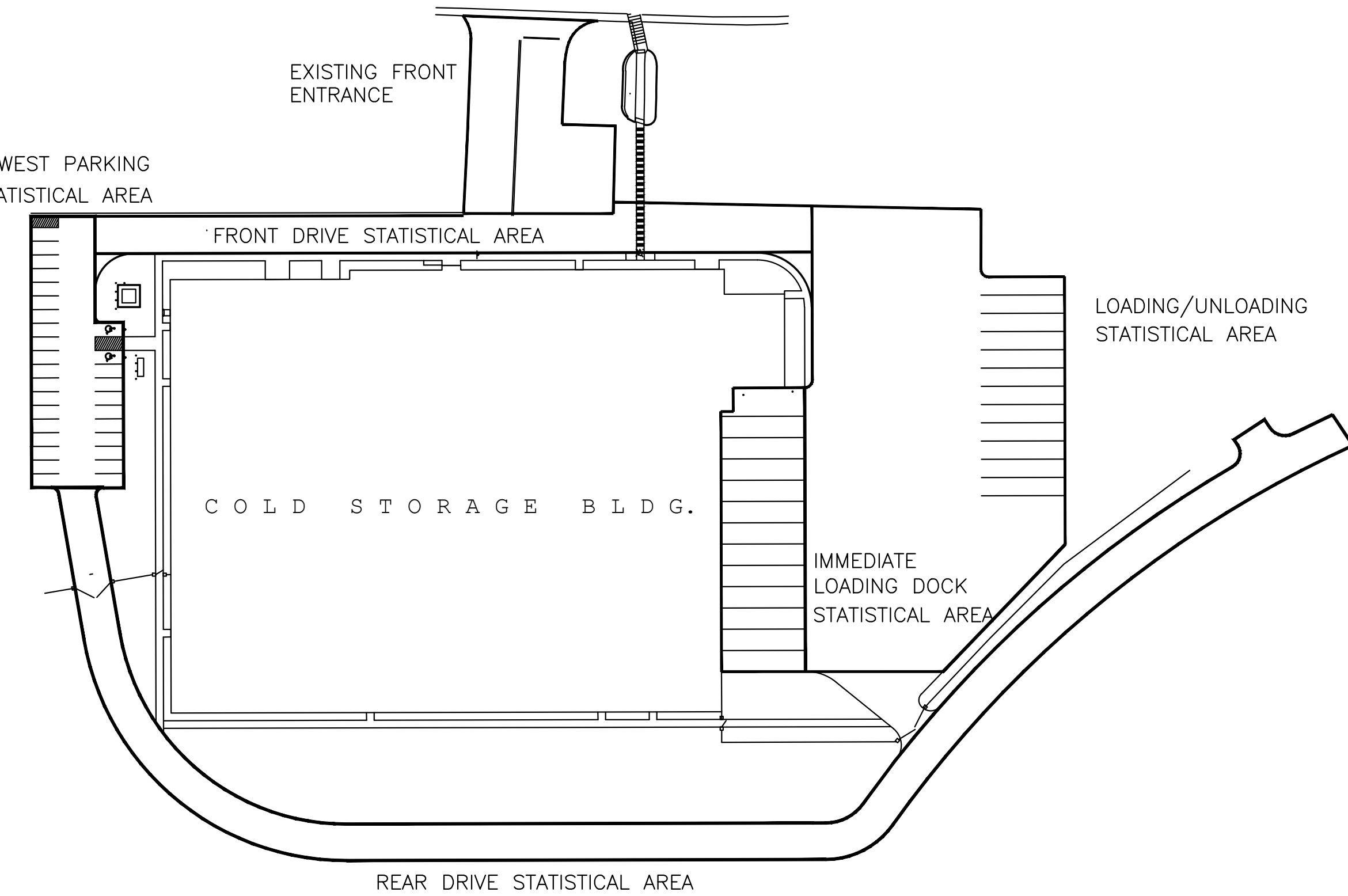
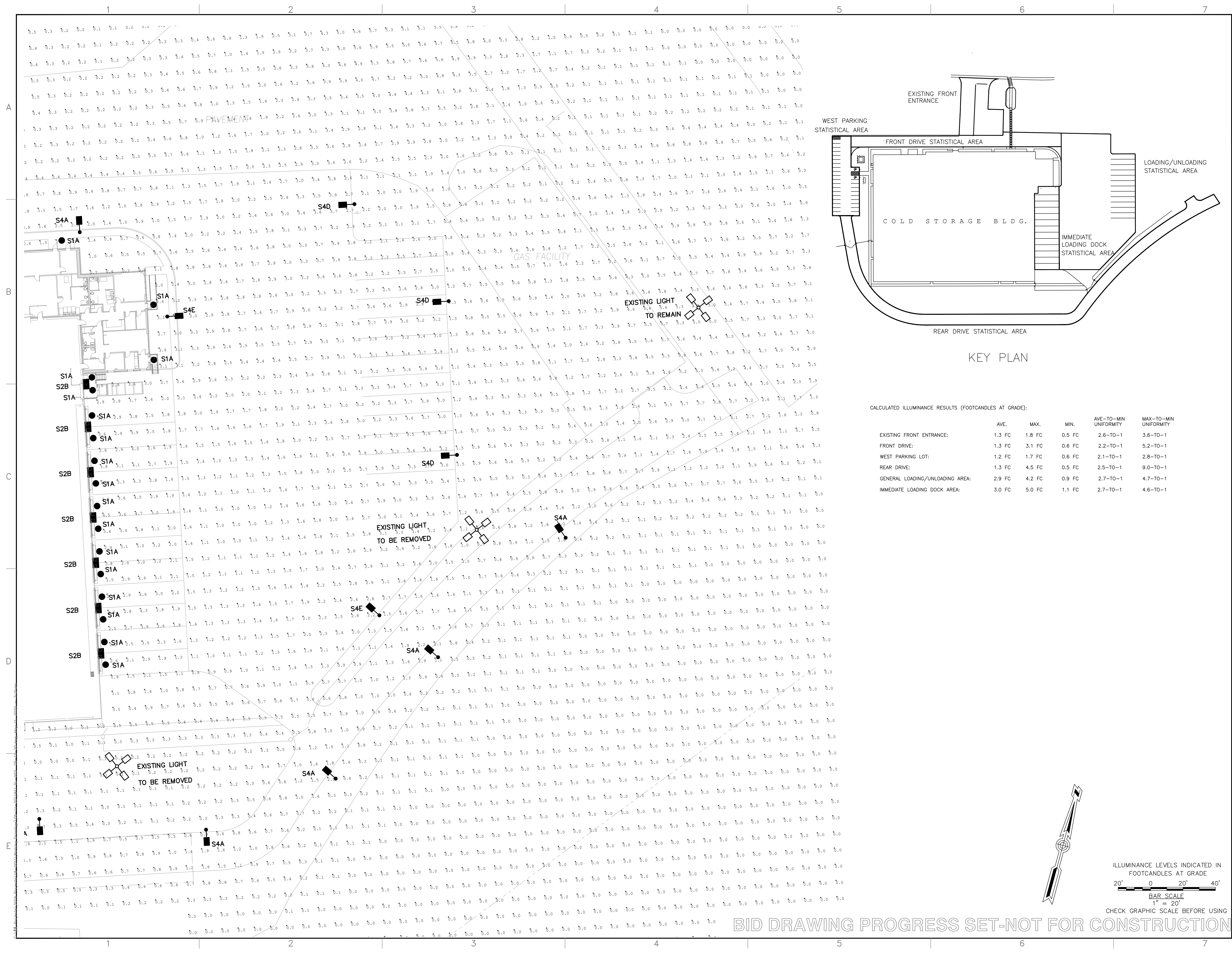
MAINE PORT AUTHORITY

JOB NO.: 0232277.C

DATE: JUNE 1, 2020

SHEET: OF XX

SL-001



CALCULATED ILLUMINANCE RESULTS (FOOTCANDLES AT GRADE):

	AVE.	MAX.	MIN.	AVE-TO-MIN UNIFORMITY	MAX-TO-MIN UNIFORMITY
EXISTING FRONT ENTRANCE:	1.3 FC	1.8 FC	0.5 FC	2.6-TO-1	3.6-TO-1
FRONT DRIVE:	1.3 FC	3.1 FC	0.6 FC	2.2-TO-1	5.2-TO-1
WEST PARKING LOT:	1.2 FC	1.7 FC	0.6 FC	2.1-TO-1	2.8-TO-1
REAR DRIVE:	1.3 FC	4.5 FC	0.5 FC	2.5-TO-1	9.0-TO-1
GENERAL LOADING/UNLOADING AREA:	2.9 FC	4.2 FC	0.9 FC	2.7-TO-1	4.7-TO-1
IMMEDIATE LOADING DOCK AREA:	3.0 FC	5.0 FC	1.1 FC	2.7-TO-1	4.6-TO-1

41 Hutchins Drive
Portland, Maine 04102
800.426.4322 | www.woodardcurran.com

WOODARD & CURRAN

COMMITMENT & INTEGRITY DRIVE RESULTS

MAINE PORT AUTHORITY
PORTLAND, MAINE

MAINE PORT AUTHORITY
COLD STORAGE FACILITY

JOB NO.: 0232277.00
DATE: JUNE 1, 2020
SCALE: 1"=20'-0"
SHEET: 1 OF XX

SL-002

DESIGNED BY: EBR
CHECKED BY: EBR
DATE: 6-1-2020
DRAWN BY: EBR

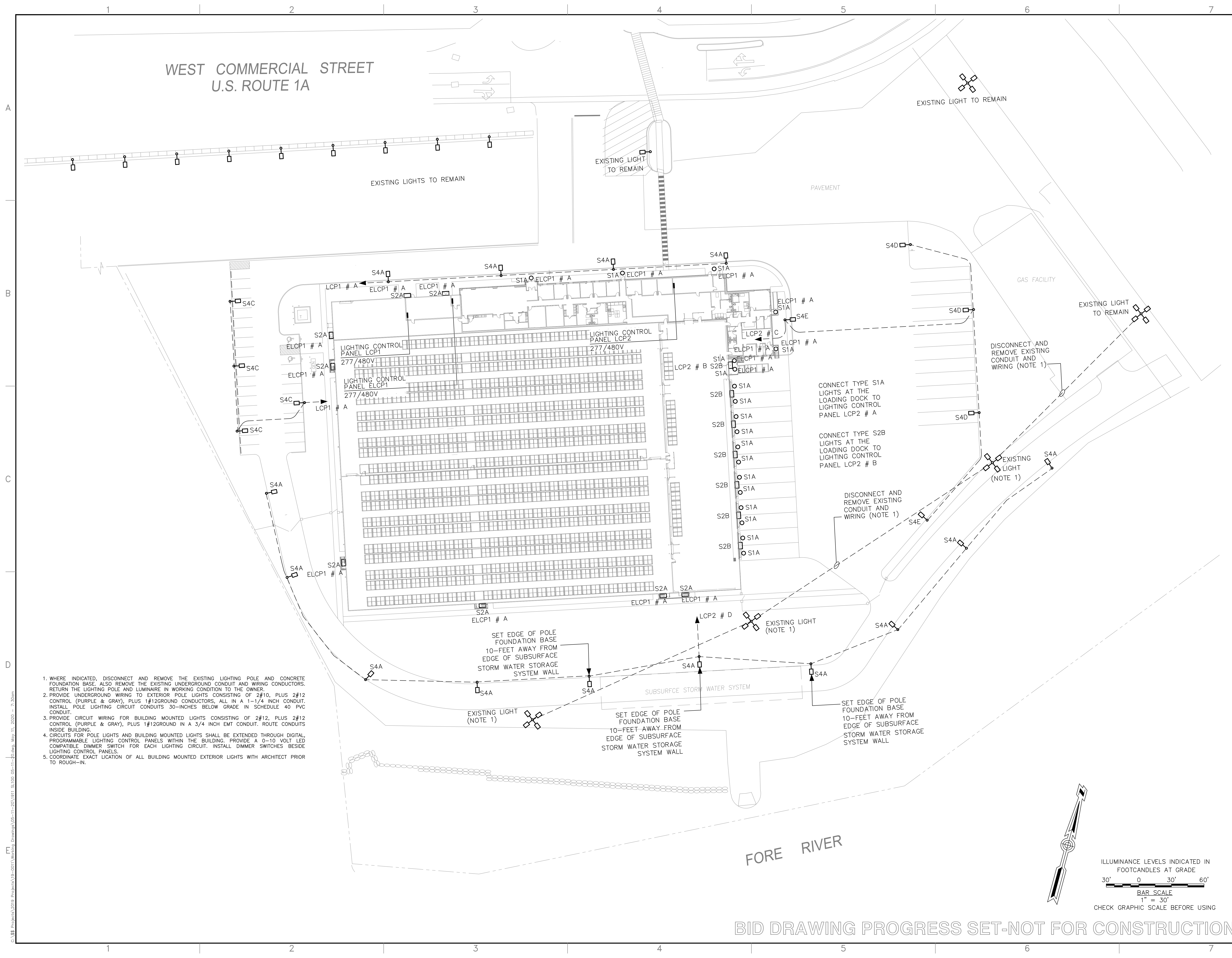
DATE: 6-1-2020
DESCRIPTION: SITE LIGHTING ILLUMINANCE CALCULATION PLAN - PART 2
REV: 1

DATE: 6-1-2020
DESCRIPTION: SITE LIGHTING ILLUMINANCE CALCULATION PLAN - PART 2
REV: 1

MAINE PORT AUTHORITY
PORTLAND, MAINE

MAINE PORT AUTHORITY
COLD STORAGE FACILITY

BID DRAWING PROGRESS SET-NOT FOR CONSTRUCTION



WEST COMMERCIAL STREET
U.S. ROUTE 1A

EXISTING LIGHT TO REMAIN

EXISTING LIGHT
TO REMAIN

PAVEMENT

GAS FACILITY

EXISTING LIGHT
TO REMAIN

DISCONNECT AND
REMOVE EXISTING
CONDUIT AND
WIRING (NOTE 1)

CONNECT TYPE S1A
LIGHTS AT THE
LOADING DOCK TO
LIGHTING CONTROL
PANEL LCP2 # A

CONNECT TYPE S2B
LIGHTS AT THE
LOADING DOCK TO
LIGHTING CONTROL
PANEL LCP2 # B

DISCONNECT AND
REMOVE EXISTING
CONDUIT AND
WIRING (NOTE 1)

EXISTING
LIGHT
(NOTE 1)

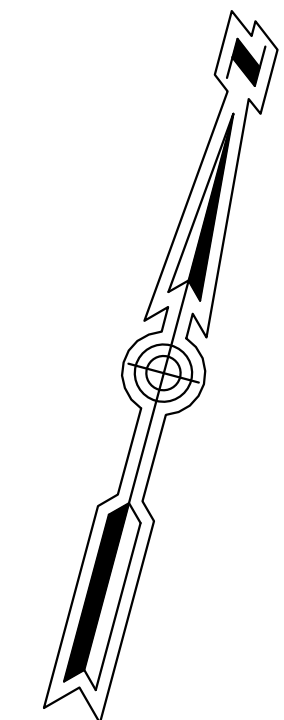
EXISTING LIGHT
(NOTE 1)

EXISTING LIGHT
(NOTE 1)

SET EDGE OF POLE
FOUNDATION BASE
10- FEET AWAY FROM
EDGE OF SUBSURFACE
STORM WATER STORAGE
SYSTEM WALL

SET EDGE OF POLE
FOUNDATION BASE
10- FEET AWAY FROM
EDGE OF SUBSURFACE
STORM WATER STORAGE
SYSTEM WALL

FORE RIVER



ILLUMINANCE LEVELS INDICATED IN
FOOTCANDLES AT GRADE
30' 0 30' 60'
BAR SCALE
1" = 30'
CHECK GRAPHIC SCALE BEFORE USING

1. WHERE INDICATED, DISCONNECT AND REMOVE THE EXISTING LIGHTING POLE AND CONCRETE FOUNDATION BASE. ALSO REMOVE THE EXISTING UNDERGROUND CONDUIT AND WIRING CONDUCTORS. RETURN THE LIGHTING POLE AND LUMINAIRE IN WORKING CONDITION TO THE OWNER.
2. PROVIDE UNDERGROUND WIRING TO EXTERIOR POLE LIGHTS CONSISTING OF 2#10, PLUS 2#12 CONTROL (PURPLE & GRAY), PLUS 1#12GROUND CONDUCTORS, ALL IN A 1-1/4 INCH CONDUIT. INSTALL POLE LIGHTING CIRCUIT CONDUITS 30-INCHES BELOW GRADE IN SCHEDULE 40 PVC CONDUIT.
3. PROVIDE CIRCUIT WIRING FOR BUILDING MOUNTED LIGHTS CONSISTING OF 2#12, PLUS 2#12 CONTROL (PURPLE & GRAY), PLUS 1#12GROUND IN A 3/4 INCH EMT CONDUIT. ROUTE CONDUITS INSIDE BUILDING.
4. CIRCUITS FOR POLE LIGHTS AND BUILDING MOUNTED LIGHTS SHALL BE EXTENDED THROUGH DIGITAL, PROGRAMMABLE LIGHTING CONTROL PANELS WITHIN THE BUILDING. PROVIDE A 0-10 VOLT LED COMPATIBLE DIMMER SWITCH FOR EACH LIGHTING CIRCUIT. INSTALL DIMMER SWITCHES BESIDE LIGHTING CONTROL PANELS.
5. COORDINATE EXACT LOCATION OF ALL BUILDING MOUNTED EXTERIOR LIGHTS WITH ARCHITECT PRIOR TO ROUGH-IN.

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodwardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

REV	DESCRIPTION	DATE	CHECKED BY	DATE
1	REVISED LUMINAIRE LOCATIONS	04/21/20		

MAINE PORT AUTHORITY
PORTLAND, MAINE

MAINE PORT AUTHORITY
COLD STORAGE FACILITY

JOB NO.: 02332277.00
DATE: JUNE 1, 2020
SCALE: 1"=20'-0"
SHEET: # OF XX

SL-100

BID DRAWING PROGRESS SET-NOT FOR CONSTRUCTION

11. CONSTRUCTION MANAGEMENT PLAN

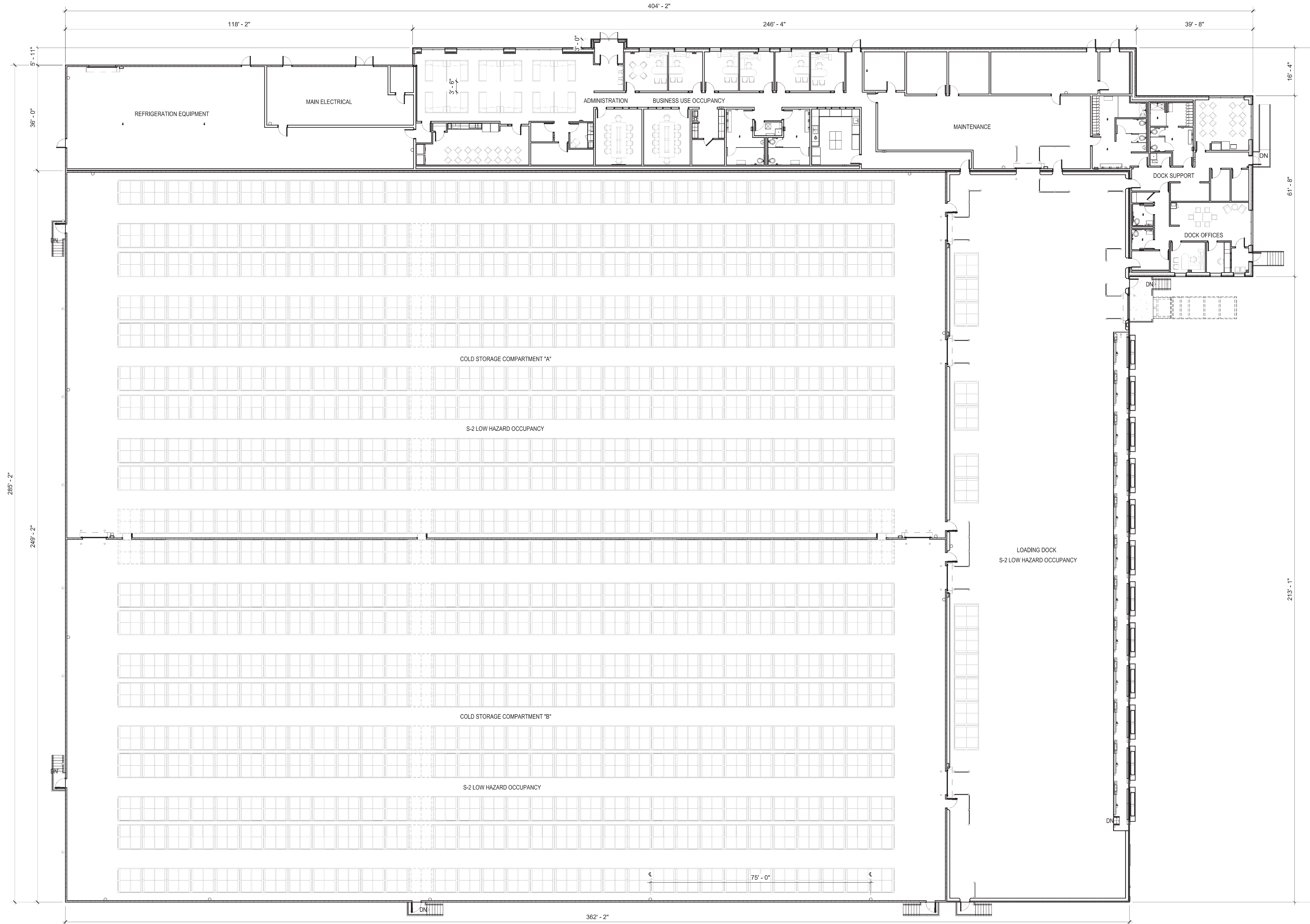
A Construction Management Plan has been prepared by Woodard & Curran for the proposed development. The Contractor will be required to provide adequate safety fencing and signage directing pedestrians safely around the construction area. The Construction Management Plan is attached to this Section for your reference.

11.1 ATTACHMENTS

- Construction Management Plan prepared by Woodard & Curran (Uploaded to the Construction Management Plan folder on Eplan)

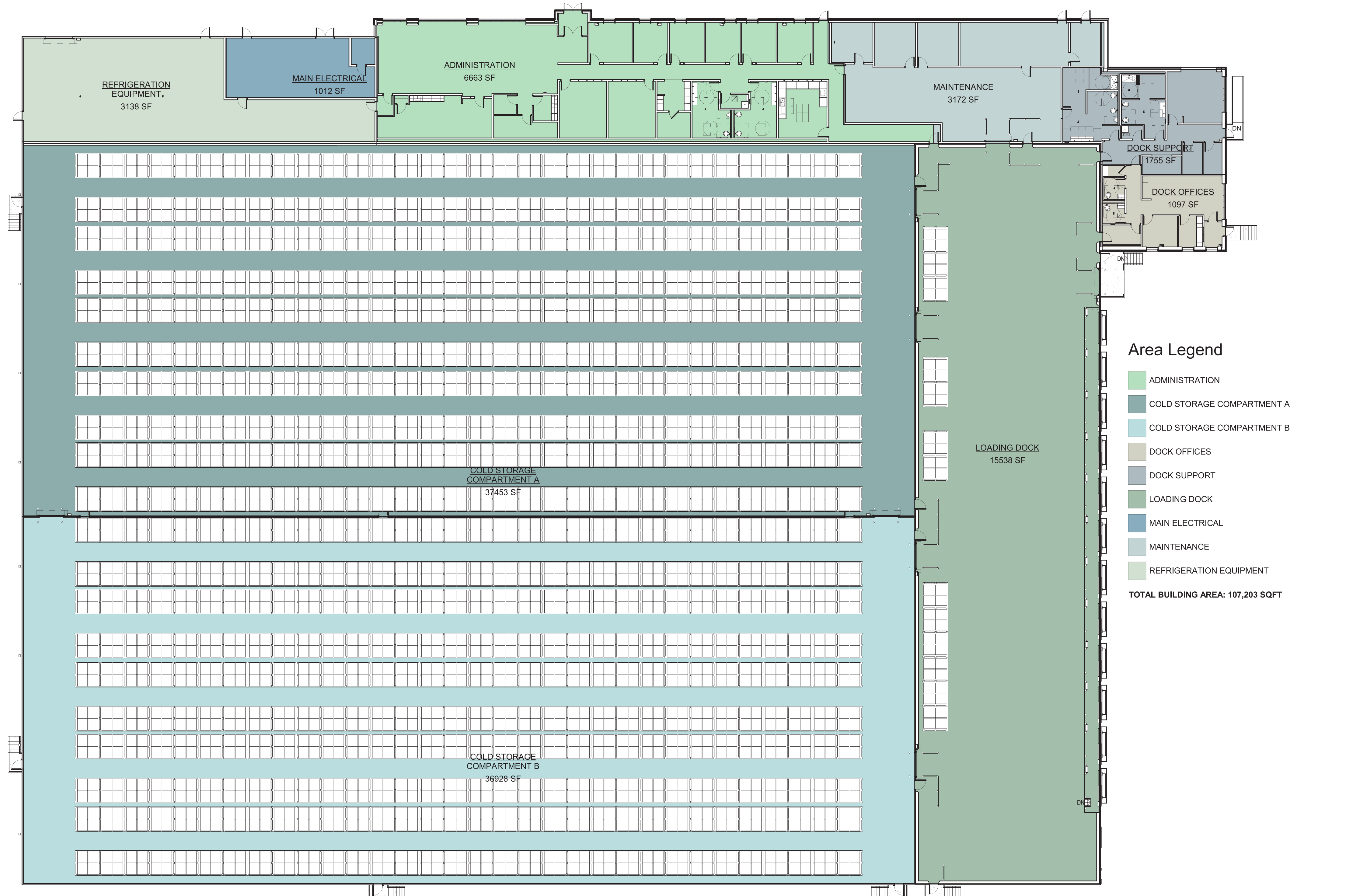
PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

FLOOR PLAN

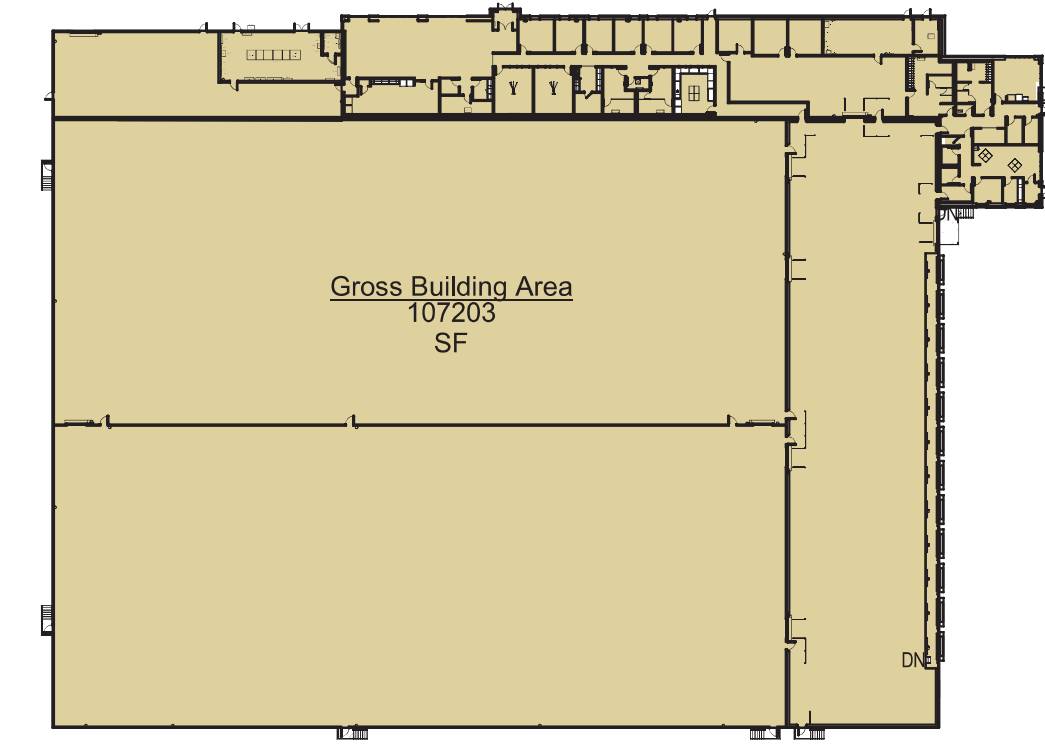


PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

AREA FLOOR PLAN



COLD STORAGE COMPARTMENT A: 10,196 PALLET POSITIONS
COLD STORAGE COMPARTMENT B: 10,192 PALLET POSITIONS



Area Legend

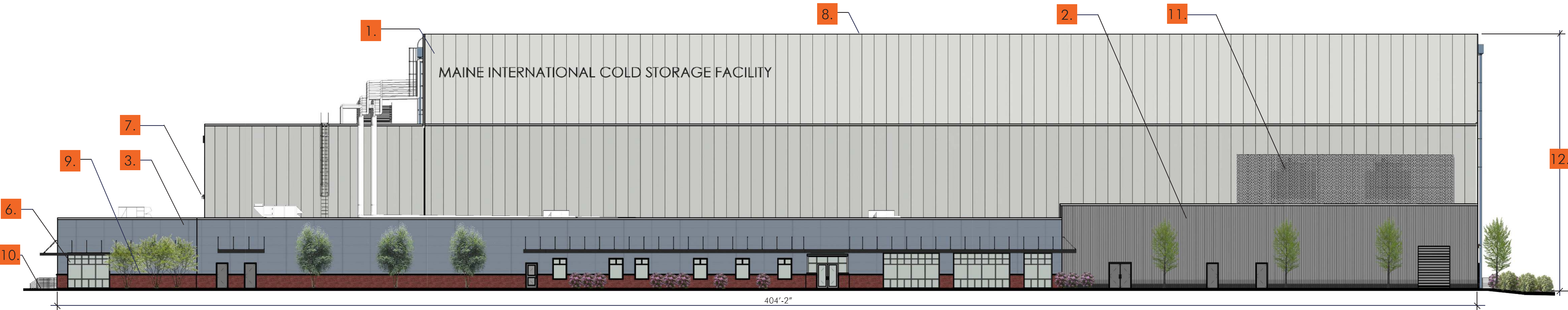
- ADMINISTRATION
- COLD STORAGE COMPARTMENT A
- COLD STORAGE COMPARTMENT B
- DOCK OFFICES
- DOCK SUPPORT
- LOADING DOCK
- MAIN ELECTRICAL
- MAINTENANCE
- REFRIGERATION EQUIPMENT

TOTAL BUILDING AREA: 107,203 SQFT

PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

BUILDING ELEVATIONS

- 1. INSULATED METAL PANEL - COLOR NO. 1 - OFF WHITE
- 2. INSULATED METAL PANEL - COLOR NO. 2 - CHARCOAL
- 3. INSULATED METAL PANEL - COLOR NO. 3 - DUSTY BLUE
- 4. INSULATED METAL PANEL - COLOR NO. 4 - LIGHT GRAY
- 5. METAL DOWNSPOUT
- 6. ALUMINUM STOREFRONT WINDOW SYSTEM
- 7. OVERHEAD DOORS AND DOOR SEAL ASSEMBLIES BEYOND
- 8. TPO ROOFING SYSTEM BEYOND
- 9. RED NARROW FLASHED MODULAR BRICK WAINSCOT WITH PRECAST CONCRETE CAP
- 10. EXPOSED CONCRETE FOUNDATION SYSTEM
- 11. SCREENING AT TALLER ROOF TOP EQUIPMENT
- 12. MAXIMUM BUILDING HEIGHT AS MEASURED ABOVE THE AVERAGE GRADE SHALL BE 73'-10".



NORTH ELEVATION

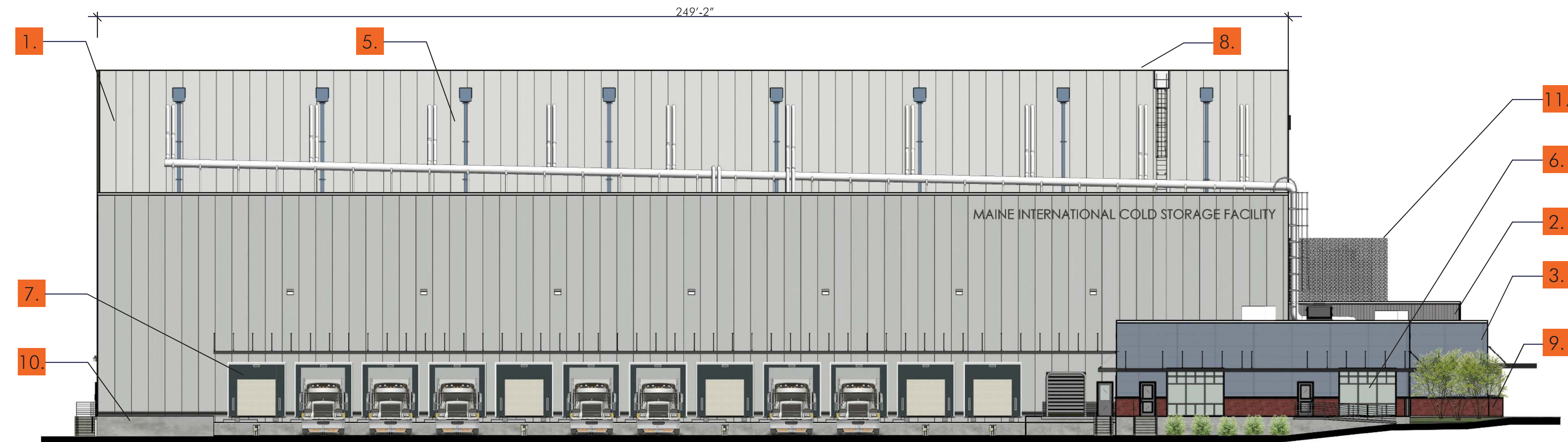


SOUTH ELEVATION

PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

BUILDING ELEVATIONS

- 1. INSULATED METAL PANEL - COLOR NO. 1 - OFF WHITE
- 2. INSULATED METAL PANEL - COLOR NO. 2 - CHARCOAL
- 3. INSULATED METAL PANEL - COLOR NO. 3 - DUSTY BLUE
- 4. INSULATED METAL PANEL - COLOR NO. 4 - LIGHT GRAY
- 5. METAL DOWNSPOUT
- 6. ALUMINUM STOREFRONT WINDOW SYSTEM
- 7. OVERHEAD DOORS AND DOOR SEAL ASSEMBLIES BEYOND
- 8. TPO ROOFING SYSTEM BEYOND
- 9. RED NARROW FLASHED MODULAR BRICK WAINSCOT WITH PRECAST CONCRETE CAP
- 10. EXPOSED CONCRETE FOUNDATION SYSTEM
- 11. SCREENING AT TALLER ROOF TOP EQUIPMENT
- 12. MAXIMUM BUILDING HEIGHT AS MEASURED ABOVE THE AVERAGE GRADE SHALL BE 73'-10".



EAST ELEVATION



WEST ELEVATION

PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

BUILDING VIEW 1: AERIAL VIEW - LOOKING SOUTHWEST



PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

BUILDING VIEW 2: VIEW FROM HARBOR VIEW MEMORIAL PARK



PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

BUILDING VIEW 5: VIEW FROM COMMERCIAL STREET - LOOKING EAST



PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

BUILDING VIEW 6: VIEW FROM SOUTH PORTLAND - THOMAS KNIGHT PARK



PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY



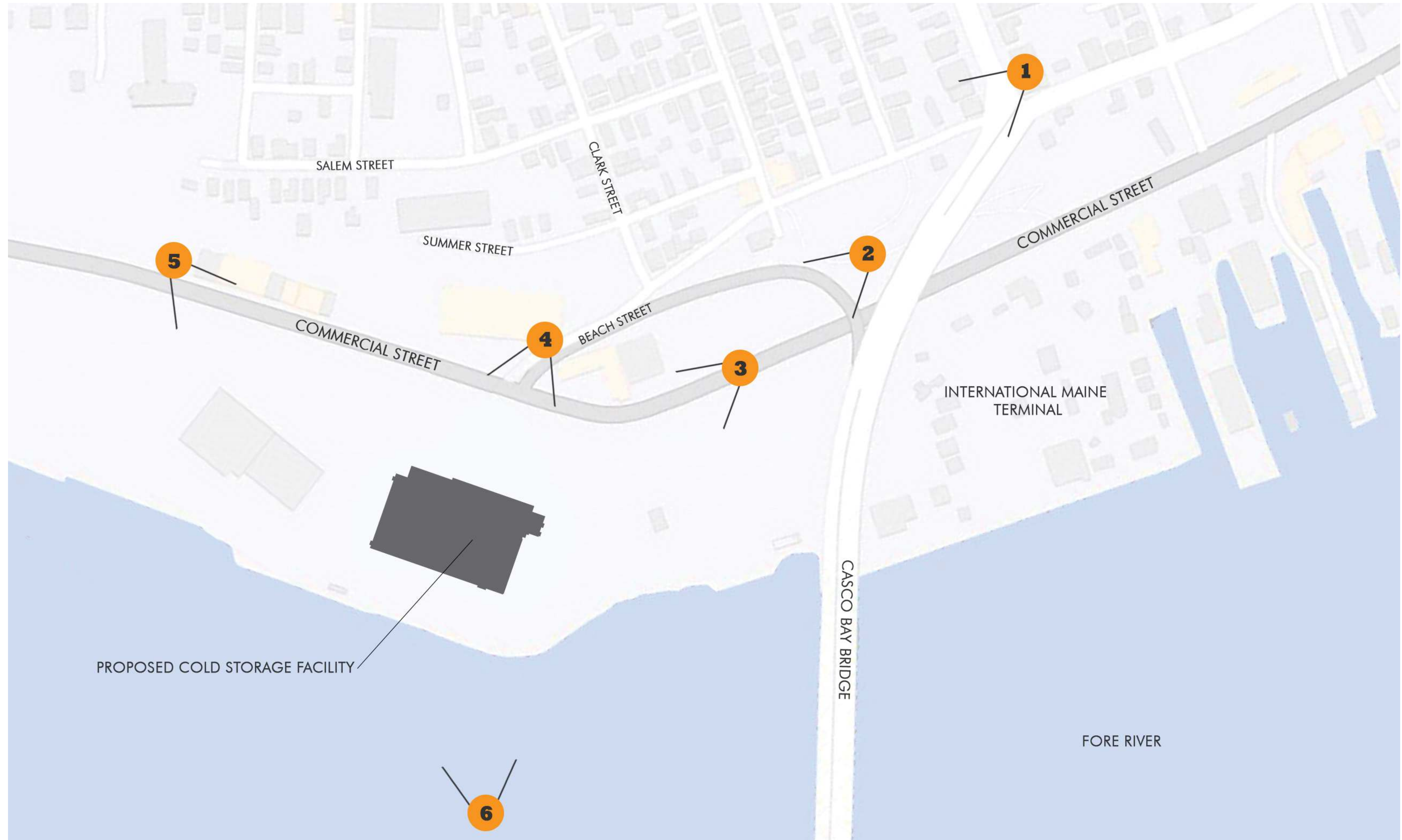
BUILDING VIEW 3: VIEW FROM COMMERCIAL STREET - LOOKING SOUTHWEST



BUILDING VIEW 4: VIEW FROM BEACH STREET (AT COMMERCIAL STREET)

PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

BUILDING VIEW LOCATION MAP



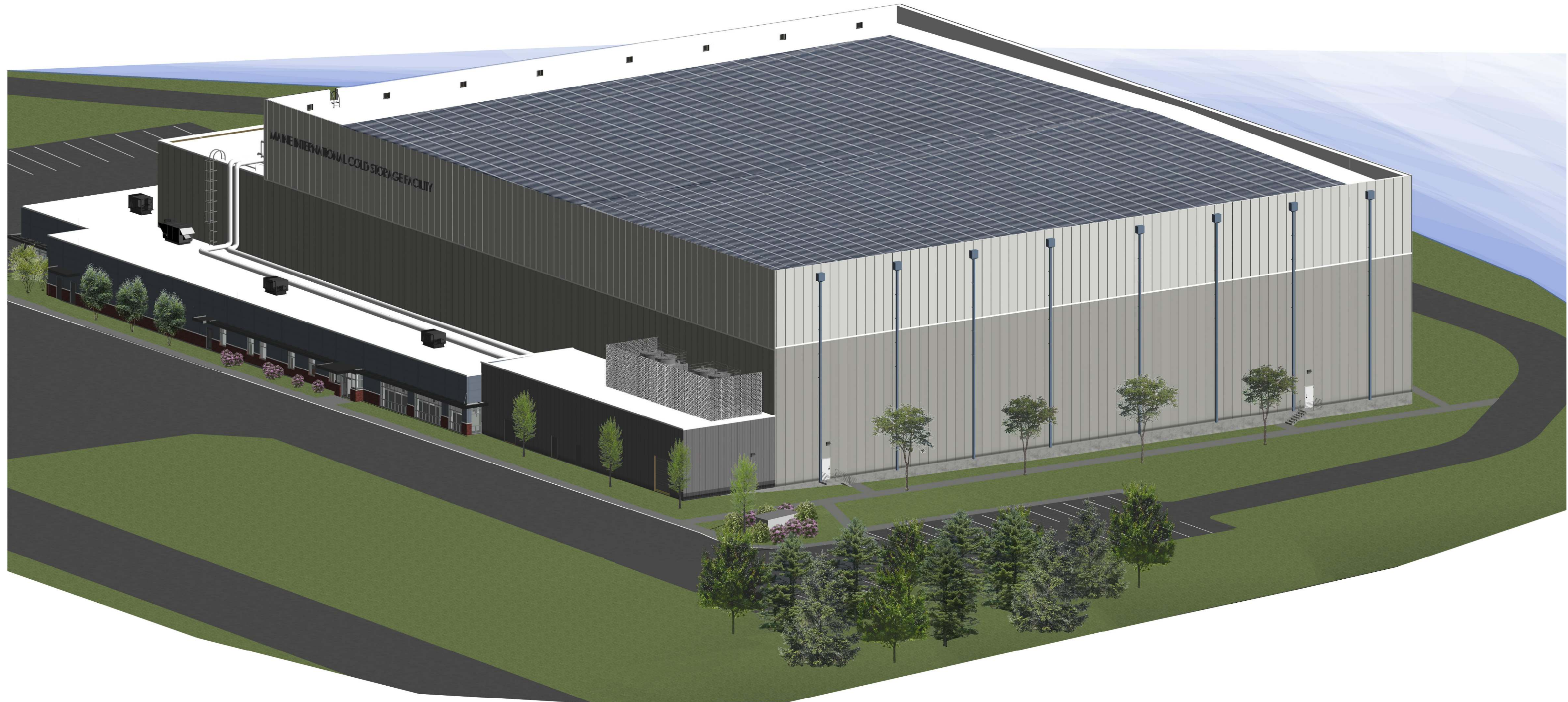
PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

NORTHEAST PERSPECTIVE



PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

NORTHWEST PERSPECTIVE

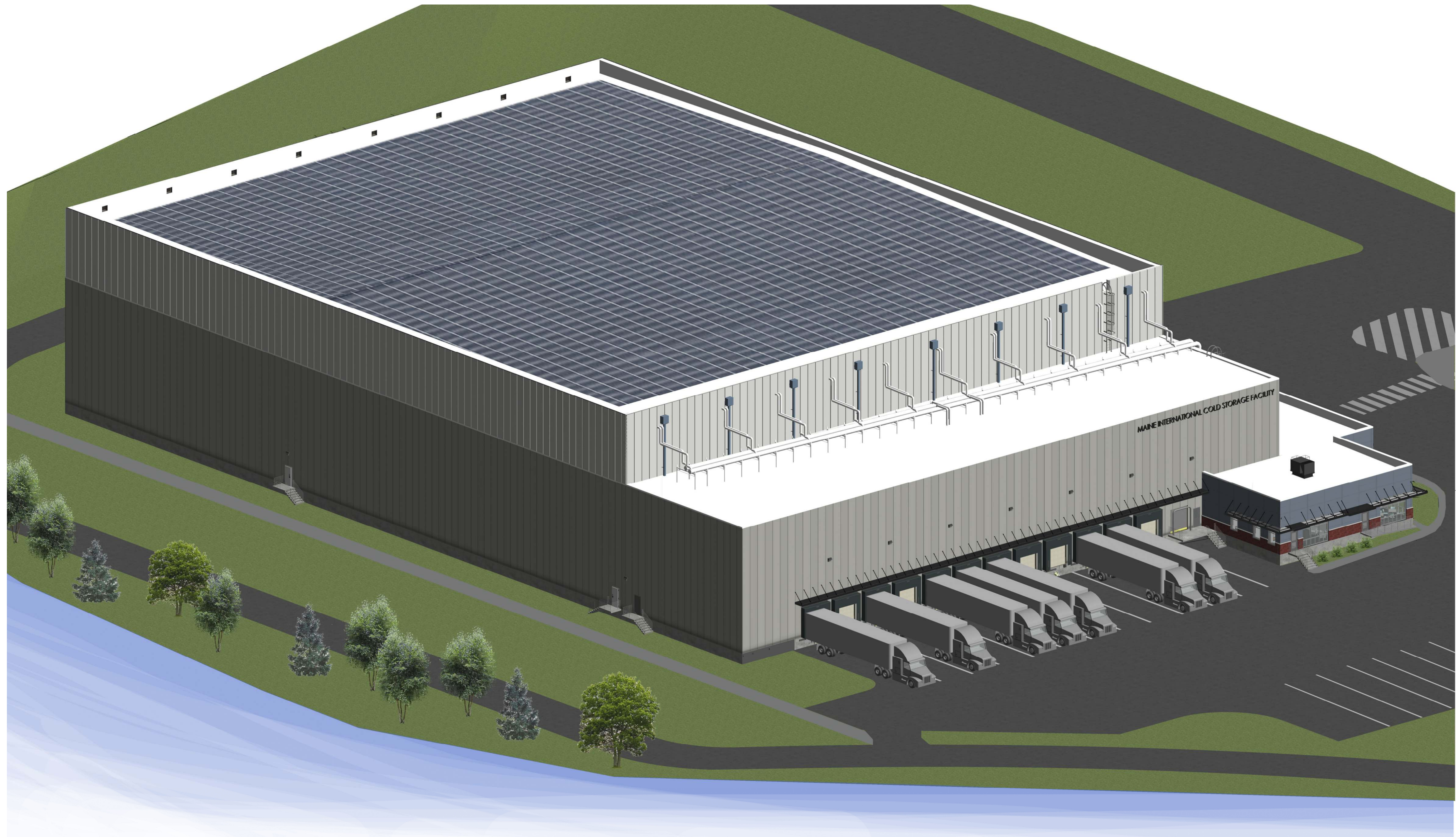


264 US Route One, Suite 100-2A
Scarborough, ME 04074
(207) 774-4441

CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN

PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

SOUTHEAST PERSPECTIVE

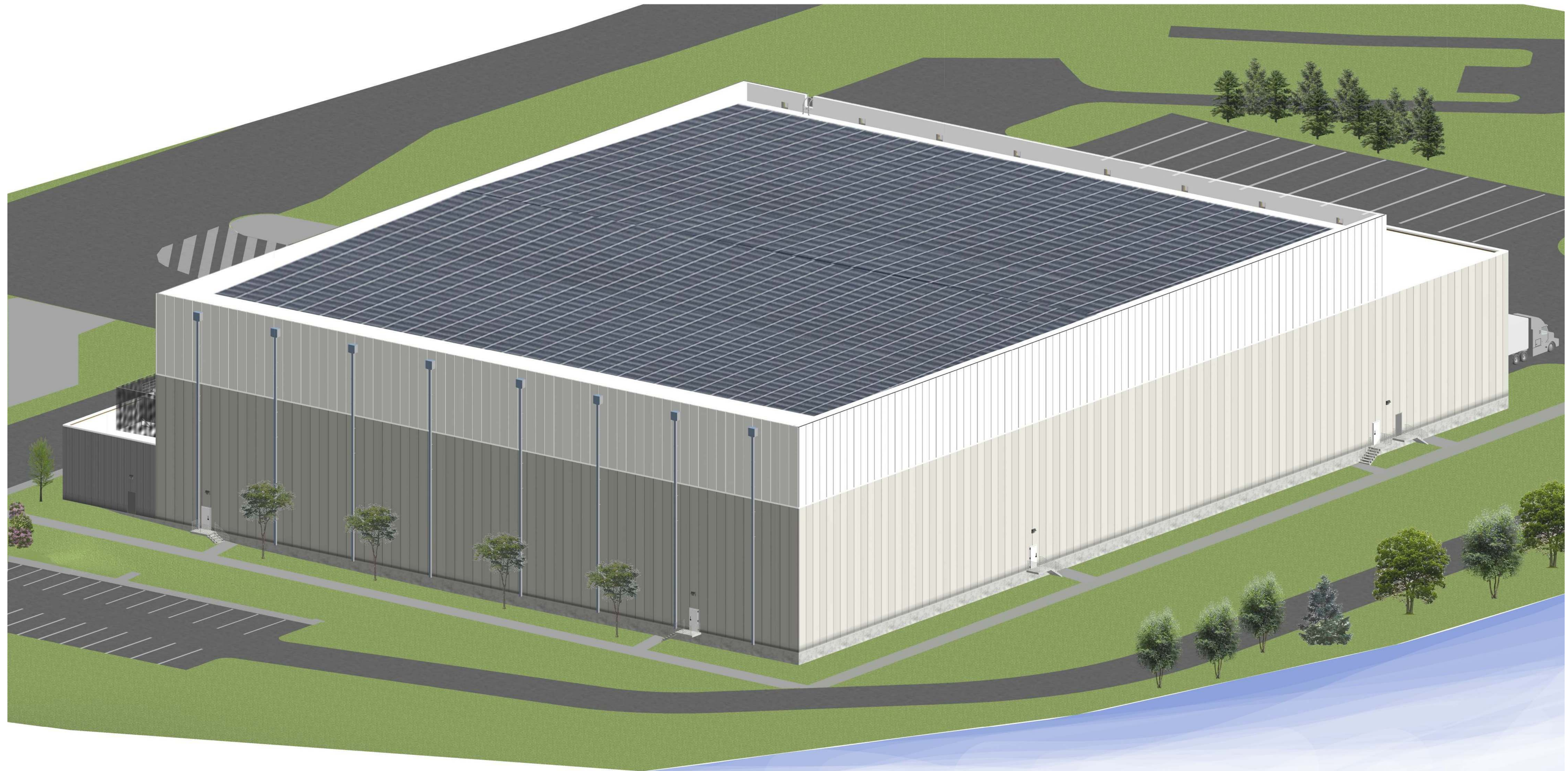


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Scarborough, ME 04074
(207) 774-4441

CWS ARCHITECTS
ARCHITECTURE | INTERIOR DESIGN

PROPOSED MAINE INTERNATIONAL COLD STORAGE FACILITY

SOUTHWEST PERSPECTIVE



Memorandum
Planning and Urban Development Department
Planning Division



To: Brandon Mazer, Chair and Members of the Portland Planning Board
From: Andrew Tufts, Planner
Date: June 19, 2020
Re: Avesta Housing, 210 Valley Street, Avesta Valley Street, LP
Project #: PL-001075-2020 CBL: 064 Foo7001
Meeting: June 23, 2020

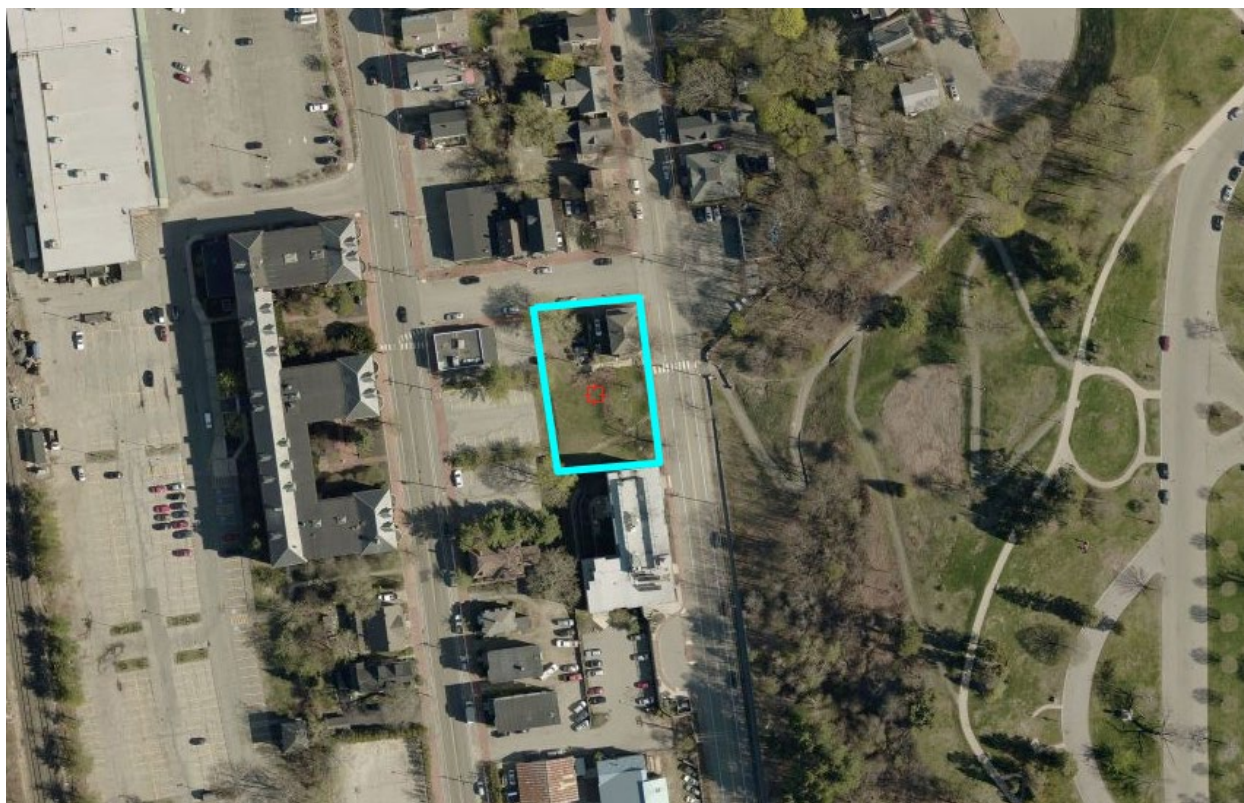


Figure 1: Parcel outline - Source: City of Portland Maine Parcel Viewer

I. INTRODUCTION

Avesta Valley Street, LP, has submitted a Level III Site Plan, Subdivision and Conditional Use (Inclusionary Zoning) application for the development of a five-story, 60-unit affordable residential building. The property is a 14,964 square foot parcel along approximately 250 linear feet of street frontage on Valley Street. The site is in the B-2 zone, and is within 100' of the Western Promenade, requiring review by Historic Preservation Staff.

The Planning & Urban Development Department sent 83 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the June 11th & June 12th editions of the Portland Press Herald.

Applicant: Avesta Valley Street, LP

Consultants: Sam Lebel, P.E. (Acorn Engineering - Applicant/ Civil Engineer), Ryan Senatore, AIA - Ryan Senatore Architecture) Randy Loubier (Owen Haskell Inc Surveying)

II. REQUIRED REVIEWS

<i>Waiver Requests</i>	<i>Applicable Standards</i>
Driveway Aisle width narrower than the required 24' width. Staff Comments: The City's Traffic Engineer supports a waiver from the City's Technical Standards for driveway width given low traffic volumes and traffic characteristics.	Technical Manual, <i>Section 1.14 & Figure I-29</i> , requiring 24.00' wide drive aisle for two-way access aisles with 90 degree parking.
Reduction of driveway width to 18' at the parking garage entrance. Staff Comments: The City's Traffic Engineer supports a waiver from the City's Technical Standards for the proposed driveway width.	Technical Manual 1.7.2.3 Driveway Width <i>Any site with driveway access to a street shall have a minimum width of 20 feet for two-way ingress and egress</i>
<i>Review</i>	<i>Applicable Standards</i>
Site Plan	<i>Section 14-526</i>
Subdivision	<i>Section 14-497</i>
Inclusionary Zoning (IZ)	<i>Section 14-474, Section 14-487</i>

III. PROJECT DATA

Existing Zoning	B-2 Community Business Zone
Existing Use	<i>Single Family Residential – Vacant lot</i>
Proposed Use	<i>Multifamily Housing</i>
Parcel Size	14,964 square feet

	<i>Existing</i>	<i>Proposed</i>	<i>Net Change</i>
Building Footprint	1,164 SF	13,290 SF	+ 12,126 SF
Building Floor Area	2,328 SF	73,382 SF	+ 71,054 SF
Impervious Surface Area	6,053 SF	14,131 SF	+ 8,078 SF
Parking Spaces	4	40	+ 36
Bicycle Parking Spaces	0	24	+ 24



Figure 2: Existing conditions - Source: Google Earth

IV. EXISTING CONDITIONS

The development site is located at the intersection of Valley and C Streets. The proposed lot is a combination of multiple properties comprising 14,964 square feet. The southern portion of the site is undeveloped and vegetated, while the corner lot is developed with a single-family structure and associated surface parking. The site is located in the St. John Valley neighborhood, and is bordered by Valley Street to the east, Florence House to the south, commercial developments to the west, and C Street to the north. Abutting uses are residential, retail and office space, and recreational open space.

Approximately 40% of the existing site is comprised of impervious area, including the existing building, the gravel driveways, a concrete walkway, retaining walls, and areas of riprap. The grassed areas are in fair condition with some patches of exposed soils. From east to west the grades drop off at approximately 16%. The project area presently drains the majority of its runoff to the abutting properties to the west toward St. John Street. Two street trees exist along Valley Street. The nearest open space is the Western Promenade, located directly across Valley Street.

Owen Haskell Inc. completed a boundary and topographic survey of the site in March of 2020. There are no existing easements identified by Owen Haskell, Inc. on the Existing Conditions Plan. There are no proposed easements as part of the project. The proposed submersible transformer will be located within the City ROW and a license will be required from the City.



Figure 3: View Looking from Walking Path - Source: Ryan Senatore Architecture

V. PROPOSED DEVELOPMENT

The proposed development includes a five-story, 60-unit apartment building with two levels of structured parking. The building would be set into the slope, taking advantage of the grade change to provide two levels of covered parking with driveway access from both Valley and C Streets. The first floor would be a mix of utility rooms and office space in the front, with structured parking at the rear. An additional subgrade floor would include the remaining parking on site providing a total of 40 spaces. Floors 2-5 would be residential, including 11 efficiencies, 25 one-bedroom, 14 two-bedroom, and 10 three-bedroom units. The application notes that 36 units would be affordable at 50% area median income, 12 units would be affordable at 60% area median income, and 12 units would be at market rate.

The proposed project will involve installation of new utility services to the proposed building. All new utility services will be provided from the franchise utilities available within C Street. The proposed locations of the new utility services are shown on the Utility Plan. The proposed project will receive its water supply from the Portland Water District's (PWD) public water supply system. Separate fire and domestic services will be installed to the building from PWD's existing main in C Street. CMP currently maintains overhead and underground utilities in the area. Electric utilities currently serving the existing building will remain.

VI. PUBLIC COMMENT AND NEIGHBORHOOD MEETING

No public comments have been submitted to date.

A remote neighborhood meeting was held on the evening of May 28, 2020 via Zoom at 6:00 p.m. for the proposed project. Approximately 2 members of the public attended. Attending on behalf of the development team were Catherine Elliot, Rebecca Hatfield & Hollie Sprague of Avesta Housing; Will Savage & Sam Lebel of Acorn Engineering; and Ryan Senatore of Ryan Senatore Architecture. Catherine Elliot began the presentation by introducing the development team. She then provided some insight into the

history of the project, and explained the intent for programming, and handed it off to Will Savage from Acorn Engineering to explain the site plan, parking, landscaping, stormwater, and utility elements. Following Will's explanation, Ryan Senatore was introduced to explain the proposed building's exterior, interior, and programming. At the end of Ryan's presentation, The Applicant opened the meeting to the public for Questions. Comments from the public touched on a variety of subjects including pedestrian circulation, building height, parking structure, privacy, and traffic flow.

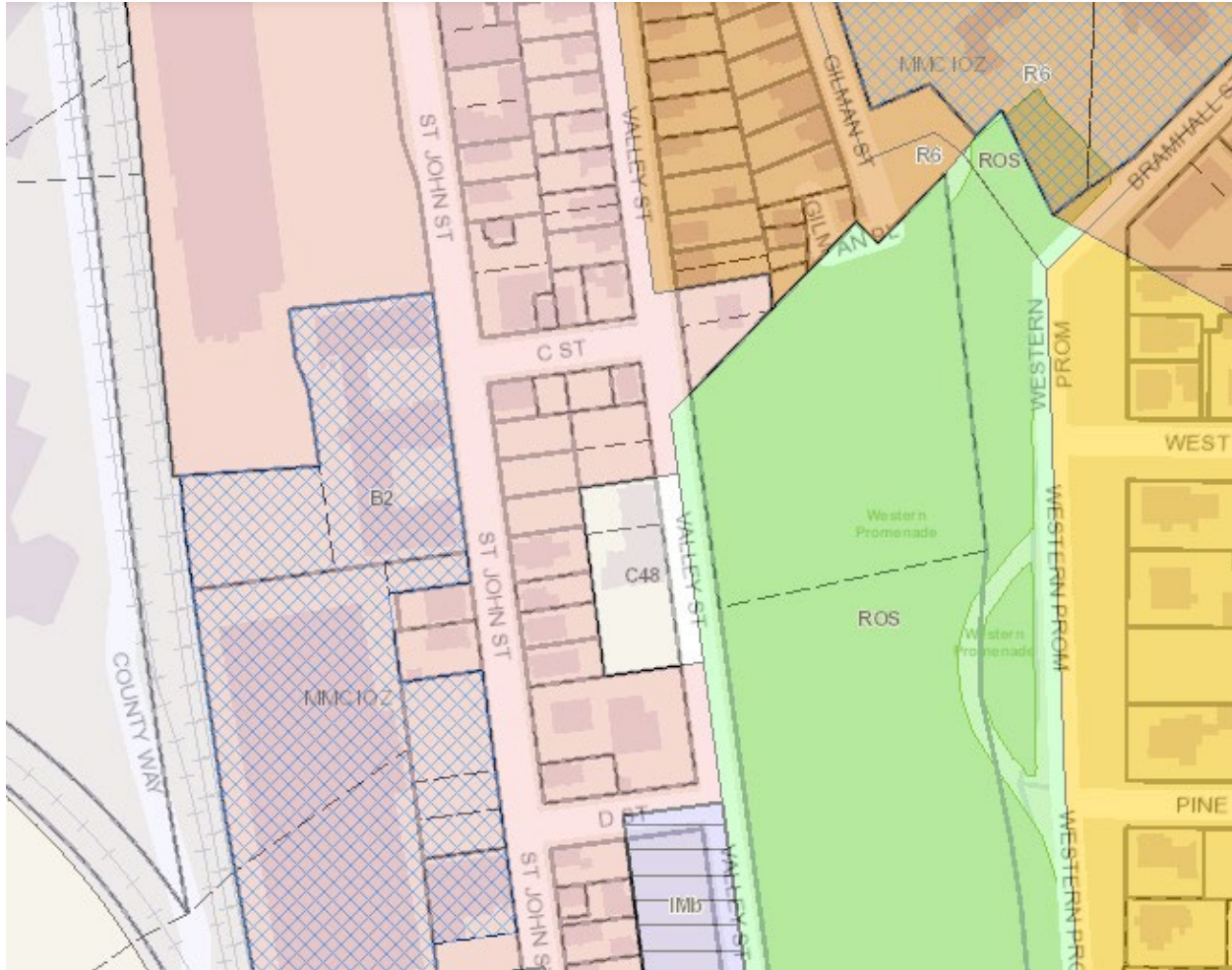
VII. RIGHT, TITLE, & INTEREST AND FINANCIAL & TECHNICAL CAPACITY

The owner of the property is Valley Bayside, LLC. The applicant provided a copy of the warranty deed, recorded at the Cumberland County Registry of Deeds in CCRD Book 27010 page 287, which demonstrates their right, title and interest in the property.

A letter from Gorham Savings Bank has been included as an attachment which states that the applicant has cash and financing resources available to complete the proposed project.

The applicant team cited their experience and qualifications to demonstrate capacity to design and construct the project.

IX. ZONING ANALYSIS



Dimensional requirements for this project are dictated by the B-2 zone. The purpose of the B-2 Community Business Zone includes providing locations for moderate to high density housing in urban neighborhoods along arterials. Exceptions for space & bulk requirements in the B-2 are allowed given affordable housing projects.

The City's Zoning Administrators reviewed the proposed development and provided the following analysis:

Avesta Valley Street, LP is proposing to redevelop the property at 210 Valley Street with a five story, 60 unit apartment building. Over 75% of the units will meet the definition of low income units as defined in Section 14-485 in Division 30 (Affordable Housing) of the City's Land Use Ordinance. The property is located in the B2 (Community Business) Zone.

The dimensional requirements for the B-2 zone are outlined in section 14-185. There is no minimum street frontage requirement or a minimum front yard or side yard setback requirement. There is also no impervious surface ratio requirement because it is a residential use. The maximum front yard setback of 10 feet and the required minimum street frontage requirement of 20 feet are being met.

In the B-2 zone, the minimum rear yard setback is 10 feet, the maximum building height allowed is 45 feet and the lot area per dwelling-unit requirement is 435 square feet. Since over 75% of the residential units will be rented or sold as low-income units the applicant is able to use section 14-488, which allows the applicant to use the bonuses for density, additional height and setback reductions. The bonus density allowed is 2.5 x the base. The base is the number of residential units allowed in the B-2 zone. The property is 14,964 sf. Divide that by the lot area per dwelling unit requirement of 435 sf, and the property could have 34 dwelling units. Multiply that by the bonus of 2.5 and the property could have 85 residential units. The applicant is proposing to build 60 residential units. The height bonus allows 25 additional feet, so the maximum allowable height is 70 feet. The applicant has stated that the height is 52.5 feet which appears to be measured from the average grade. Finally, under Section 14-488 the required minimum rear yard setback can be reduced ten feet to a zero foot setback. The proposed rear setback is 5 feet.

The proposed project appears to meet the dimensional requirements of the B-2 zone with the bonuses allowed under section 14-488.

Zoning Requirements	B-2	Provided	+/-
Minimum Lot Size	None	14,964 sf	
Lot Area/Dwelling Unit	435 sf	249.4 sf	- 185.6 sf
Minimum Street Frontage	20 ft	250 ft	+ 230 ft.
Front Yard Max	10 ft	2.85 ft	- 7.15 ft
Rear Yard Minimum	10 ft	5 ft	- 5 ft
Maximum Lot Coverage	100%	94%	- 6%
Maximum Structure Height	45 ft	52.5 ft	+ 7.5 ft
Required Parking	60	40	- 20
Req. Bicycle Parking	6	24	+ 18

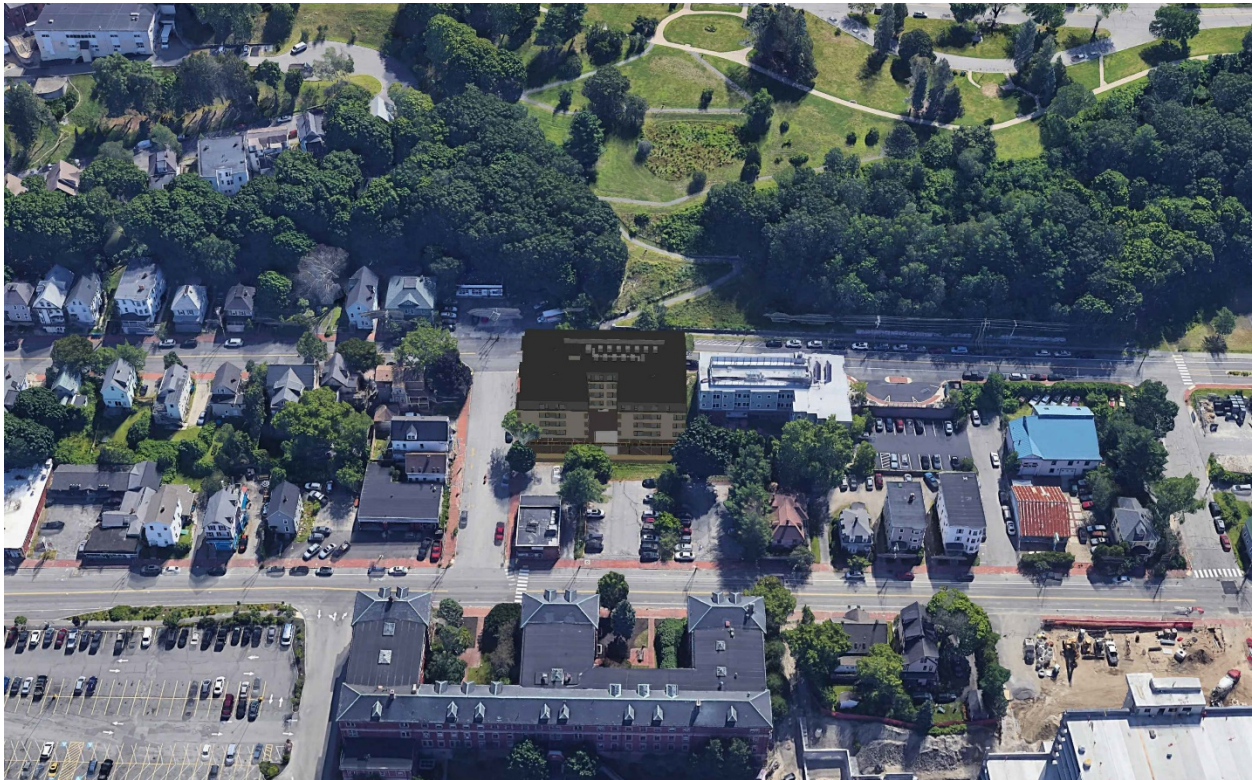


Figure 4: Proposed Aerial View - Source: RSA

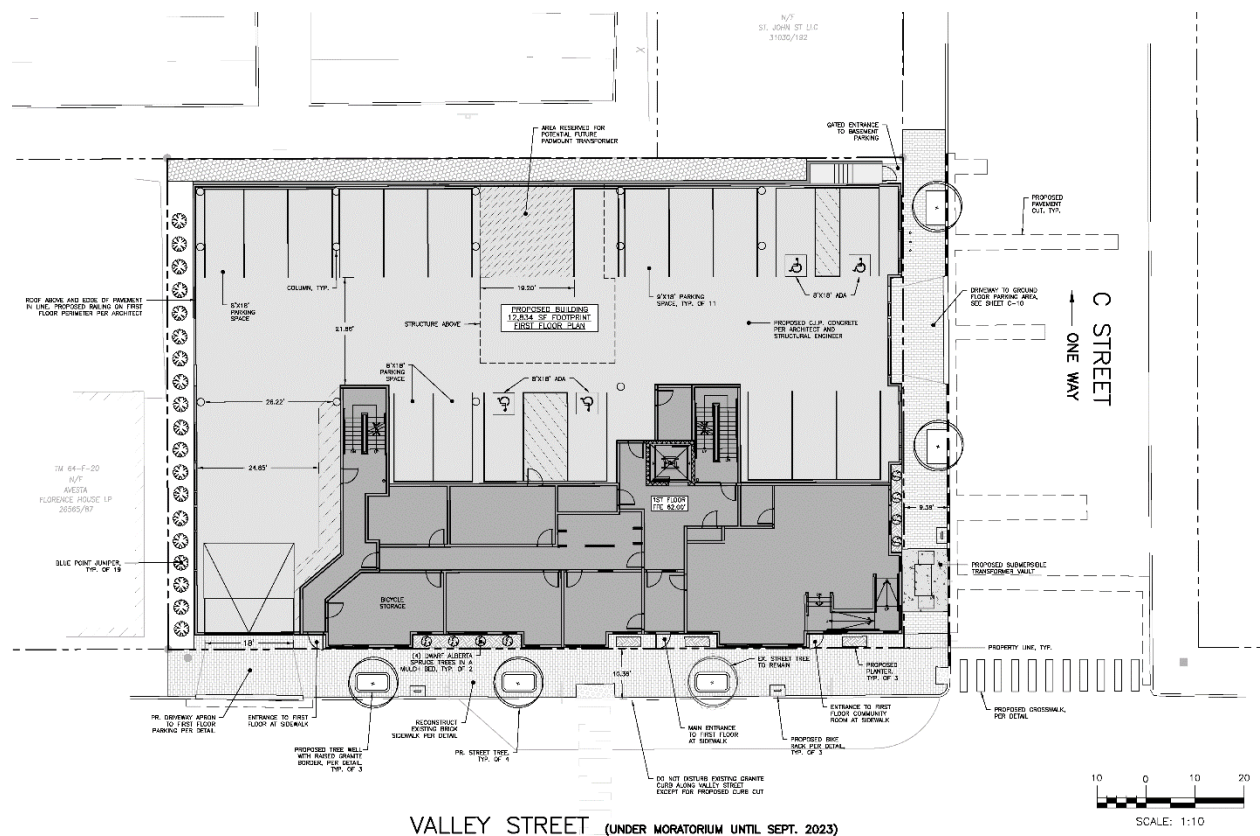


Figure 5: Site Plan - Source : Acorn Engineering

IX. DEVELOPMENT REVIEW

A. SITE PLAN SUBMISSION REQUIREMENTS (Section 14-527) SUBDIVISION PLAT AND RECORDING PLAT REQUIREMENTS (Section 14-496)

The applicant has submitted a recording plat. The final plat will need to be revised to reflect any waivers and conditions of approval that relate to the subdivision plan. Any waivers granted must be recorded at the Registry of Deeds within two years of a Planning Board decision.

B. SUBDIVISION (Section 14-496)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's Subdivision Ordinance and applicable regulations. Staff comments are listed below.

1. Will Not Result in Undue Water and Air Pollution (Section 14-497 (a) 1), and Will Not Result in Undue Soil Erosion (Section 14-497 (a) 4)

Around 10% of the existing site is comprised of rooftop with about 90% of the existing site being driveway and greenspace. The average slope is moderate with grades dropping from east to west at an average slope of approximately 16%. There are no signs of erosion on the existing site. Critical areas that would require special attention during construction include, but are not limited to, the existing structure, the drainage system within C Street and slope stabilization located within the vicinity during earthwork and foundation construction.

An erosion & sedimentation control plan has been reviewed by staff and is included in the plan set.

2. Sufficient Water Available (Section 14-497 (a) 2 and 3)

The applicant has applied for an ability to serve letter from Portland Water District.

3. Will Not Cause Unreasonable Traffic Congestion (Section 14-497 (a) 5)

The proposed development is not adding significant vehicular traffic to the site, and a traffic analysis is not required. The site is located on Valley Street on the corner of C Street and Valley Street. Valley Street is classified as Minor Arterial, and currently supports a low amount of traffic. There is a slight anticipated increase in traffic anticipated; however, the nature of the increase is low turnover and not expected to create any traffic issues.

4. Will Provide for Adequate Sanitary Sewer and Stormwater Disposal (Section 14-497 (a) 6), and Will Not Cause an Unreasonable Burden on Municipal Solid Waste and Sewage (Section 14-497 (a) 7)

Public utilities in the vicinity of the site have indicated capacity to serve the project. Ability to Serve letters have been sent to the respective providers. The new sewer and stormwater infrastructure will meet the provisions of the Technical Manual. The project would be served by connection to the public sewer system within C Street. The sanitary sewer collection system meets all applicable sections of the Technical Manual. The stormwater management system is designed to meet the standards of Maine DEP Chapter 500.

5. Comprehensive Plan (Section 14-497 (a) 9)

The development has been designed to be consistent with the City's Master Plan, *Portland Plan 2030*, adopted in June of 2017. Sited in the Housing section of the City's Policy Guide's Local Goals, it states:

Increase, preserve, and modify overall supply of housing city-wide to meet the needs, preferences and financial capabilities of all Portland residents.

C. **SITE PLAN STANDARDS** (Section 14-526)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff comments are listed below.

1. Transportation Standards

a. Impact on Surrounding Street Systems and Access and Circulation

The main entrance to the building would be via the Valley Street sidewalk. The proposed driveways would be situated as far from the intersection as possible. A crosswalk exists in front of the proposed building, leading directly to the trailhead of the Western Promenade. A traffic analysis was submitted by the applicant and found to be in conformance with city standards.

The applicant will also be providing signage throughout the building that identifies destination locations within walking distance of the site (i.e. the nearby Western Prom, Fore River Parkway Trail, Veterans Memorial Bridge to S. Portland, Valley St Community Garden, Portland Farmer's Market, etc.).

b. Sidewalks

A brick sidewalk exists along Valley Street and C Street. The existing brick sidewalks will be rebuilt in accordance with City of Portland standards. Because of the moratorium, the Applicant anticipated maintaining the majority of the existing curbing along Valley Street.

Mike Tremblay, P.E., Senior Engineer at DPW, has provided the following comments pertaining to sidewalk circulation;

- Raised tree beds are not desirable to DPW in this location. They reduce the effective sidewalk width and make it more difficult to clear snow. The applicant should work with Jeff Tarling, the City Arborist, on the proper tree bed treatment. In any case, the existing tree to remain should not have a granite tree pit installed around it.

- Spot grades for the curb ramps along the site's frontage should be provided.

c. Public Transit Access

Two METRO bus pullouts exist within 650' of the site. METRO Route 1 passes within one block of the proposed project site with two designated bus pullouts with 650' of C Street. This bus route serves the Portland Peninsula and offers connections with the Elm Street hub. Information on the METRO's bus routes and schedule will be posted throughout the

building. Additionally, the Portland Transportation Center is approximately one mile from the site, providing access through both the state and the region.

d. Parking

The proposed project would provide 39 parking spaces on site. A baseline estimate was calculated using demand data outlined in the Institute of Transportation Engineers “PARKING GENERATION” (5th Edition) publication. An average peak parking demand was found using the 0.30 spaces/bedroom rate identified by the Institute of Transportation Engineers (ITE). At this rate, the demand for the proposed project is 26 spaces for a typical weekday condition.

Although the ITE parking space / bedroom estimation provides an adequate baseline, the proposed development at 210 Valley St was then compared to several comparable developments in Portland under common ownership by the Applicant to evaluate the redevelopment against existing parking ratios approved by the City. The estimate provided by the ITE and real-world data gathered from comparable properties are more indicative of the actual parking demand than the 1 parking space per unit requirement stated in the City ordinance. As such, the Applicant will be seeking a ratio of less than 1:1 for the affordable units which the Planning Board has the authority to allow under Section 14-332.2 of the City Code.

Mike Tremblay P.E., Senior Engineer at DPW, has provided the following comments pertaining to the proposed parking layout:

- A waiver will be required for drive aisle width for the upper level parking structure and about two spaces in the lower level parking structure.

- The applicant should correct the orientation of the accessible parking space stencils on the western side of the parking structures.

e. Bicycle Parking

The applicant is proposing up to 24 bicycle spaces. The site plan includes an interior storage room for bicycles as well as 3 exterior bicycle racks.

2. Environmental Quality Standards

a. Preservation of Significant Natural Features

There are no known significant natural features on the site.

b. Landscaping & Landscape Preservation

The existing site features two street trees, and a large grassy open space. The proposed development calls for the preservation of one of the existing street trees. Four new street trees are proposed. Per Section 4.6 of the Portland Maine Technical Manual, 60 Street trees are required (one per unit). Based on the property's frontage and proposed utilities, 4 street trees are proposed to be planted in addition to preserving 1 existing street tree within the sidewalk on Valley and C Streets.

Four (4) proposed street trees and the preservation of the one (1) existing street tree would count toward a total of five (5). The applicant would contribute to the City's Street Tree Fund in lieu of the 55 street trees that would not be planted. Additionally, per Section 14.526(b).2.(b)(iii)(b)ii, the cost of the (3) proposed granite planters should be deducted from the \$22,000 contribution for 55 trees.

Fence screening would be provided between the proposed development and abutting sites.

A landscape plan was not provided as part the project application, and staff is continuing to work with the City Arborist on its review. The City Arborist has reviewed the proposed plans and provided the following comments:

Unlike the Avesta residential project on Cumberland Avenue that has a greenhouse on the roof this project offers little outdoor access for residents or relief for the neighbors due to the scale of the project. The intrinsic values of landscape and gardening for residents in large scale projects like this seems imperative.

Tree & landscape comments - Street trees - the proposed tree save is unlikely to be successful and the project should plan on installing all new trees. It was challenging to see what type of trees are specified and would recommend an upright tree form like Musashino Zelkova or similar, the Blue Point Juniper at the back-property line or Arborvitae should be 6-7' at planting. Serbian Spruce might be a possible tree, note the ones successfully growing at the MMC on Gilman Street near the energy building.

Overall, it would have been ideal to build in some landscape elements that residents could enjoy, expanding the Valley Street community garden could be an option or assisting with an element proposed in the Western Promenade Master Plan that would serve the nearby residents.

Portland Parks & Recreation can work with the project team on concepts if interested.

c. Water Quality, Storm Water Management and Erosion Control

A stone swale/detention system with two rows of subsurface storage tanks and a Nyoplast outlet control structure located to the west of the site will collect and detain stormwater runoff from the roof (after being routed through filter cartridges) and surrounding areas of the site before discharging to the Municipal Separated Storm Sewer System (MS4) within C Street instead of shedding runoff to the abutting properties as the current site does. Any runoff from vehicles parked within the covered parking areas will be caught by an internal oil-water separator and directed to the sewer system within C Street.

The development shall provide water quality treatment for no less than 95% of the new impervious area and 80% of the developed area. The project includes the redevelopment of existing impervious area including rooftops, asphalt driveways, and walkways. Water quality treatment shall be provided through the use filter cartridges that will collect and treat roof runoff. As a result of the design of the proposed development and stormwater system, the project does not anticipate creating erosion, drainage or runoff problems either in the development or with respect to adjoining properties. The existing peak flows

will be maintained, but flows will be redirected to the stormwater system through attenuation practices and infrastructure rather than letting runoff flow to the abutting private properties.

The project is required to comply with stormwater management regulations in accordance with Maine DEP Chapter 500 and City of Portland Technical Manual Chapter 5 stormwater regulations.

The projects proposed stormwater plan continues to be reviewed by staff. Lauren Swett, Consulting Civil Engineer, has provided the following comments in regard to stormwater and erosion control:

The project is required to comply with Maine DEP Chapter 500 and City of Portland Technical Manual Section 5 regulations for stormwater management. The project will be creating 8,273 square feet of new impervious surface and is required to comply with the Basic, General, and Flooding Standards.

- *Basic Standards – the project has included adequate erosion and sedimentation control for the proposed construction work.*
- *General Standards – The project is providing for water quality treatment for greater than the required area using filter cartridges and a subsurface stormwater storage system.*
- *Flooding Standards – The project is required to reduce stormwater flows from the pre-development to post-development condition. The Applicant has rounded peak flow rates in their stormwater report to the nearest whole number, and has noted that post development peak flows will not exceed predevelopment levels. Upon review of the stormwater calculations, it appears that flows do increase. We acknowledge that the flows and increases are relatively small, remaining below 1 cfs until the post-development 25-year storm event (increasing from 0.68 CFS to 1.38 CFS). The stormwater modeling does not consider all of the factors that can impact flows on a small site like this (rip rap, bends in pipe, etc.), which is why the Applicant chose to round to the nearest whole number. The project is also able to connect into a separated storm drain with increased capacity over the prior combined system. DPW has provided some feedback asking that the applicant consider infiltration. We understand the aversion to designing for infiltration in an urban area like this, especially considering the close proximity of the system to adjacent properties and the uncertainty of urban fill. We suggest that following the workshop the Applicant meet with DPW to discuss the small increases, and a waiver of the very small increases in flow is likely acceptable.*

The proposed storm drain connection in C Street uses an 8" pipe. All pipe connections of 8 inches or greater require a manhole for the connection. Similarly, a direct sewer connection is proposed into the existing sewer pipe. I do not see a

pipe size included. The Applicant should confirm pipe size, and if it is 8 inches or larger, a manhole will be required.

A general note is included on the grading plan that the sidewalk on the north side of C Street will need to be returned to City Standards after installation of the underground electric lines. Pavement repair is shown, but the extent of repair to include sidewalk brick and curing should be made clear.

4. Site Design Standards

a. Snow and Ice Loading

The buildings have been designed and located such that accumulated snow and ice will not fall onto adjacent properties or public ways. Snow storage is not applicable as the parking lot will be enclosed.

b. View Corridors

The site is not located within any corridors identified in the Downtown Vision View Corridor Protection Plan.

c. Historic Resources

The development is adjacent to a historic landscape district, and therefore historic preservation staff were included in the design review.

d. Exterior Lighting

All new exterior lighting at the site will be full cutoff with no light emitted above the horizontal plane, and in accordance with Section 12 of the Technical Manual. A photometric Lighting Plan has been prepared to demonstrate illumination levels throughout the site will be consistent with City Standards.

e. Noise and Vibration

All heating, ventilation, air conditioning equipment including air handlers and generators are designed to meet local, state, and federal emissions and noise requirements. All construction will take place between 7 a.m. and 7 p.m.

f. Signage and Wayfinding

All signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

g. Zoning Related Design Standards

The project has been designed to meet the standards set forth in the B-2 zone with the bonuses for affordability.

A design review was completed by the City's Urban Designer, which can be found as an attachment to this report. The following comments highlight the primary concerns of staff:

Building materials: vinyl is not considered appropriate for a building of this scale, staff do not support the use of vinyl siding for durability and quality concerns.

The rooftop design will be very visible from the Western Promenade (a historic landscape) – can the rooftop appurtenances be moved off the roof? If not, does the Planning Board consider the proposed screening to be adequately integrated with the design and provide sufficient screening from the public park?

Can more openings be introduced on the side façade at the ground level (otherwise blank wall except for the bay projections)?

h. Construction Management Plan

The construction management plan and narrative were submitted and reviewed by City staff and found to be acceptable.

D. INCLUSIONARY ZONING – Conditional Use (Section 14-487)

The project has been reviewed by the City's Housing & Community Development Division, which has provided the following summary:

210 Valley Street proposes to construct 60 units of rental housing. The project would include eleven studio, twenty-five one-bedroom, fourteen two-bedroom, and ten three-bedroom units.

This project triggers IZ as it would create ten or more new dwelling units through new construction.

Avesta has been before the Housing Committee and Economic Development Committee requesting funding for 210 Valley Street. In their application they noted 36 units would be affordable at 50% area median income, 12 units would be affordable at 60% area median income, and 12 units would be at market rate. Based on the requirements outlined in Section 14-487, the developer is required to provide a minimum of six units, on-site, for households earning at or below 100% AMI. The applicant has elected to provide forty-eight units, on-site, for households earning at or below 60% AMI. As such, the applicant is providing a greater percentage of affordable units at lower income targets than required by the Inclusionary Zoning Conditional Use application.

As 210 Valley Street exceeds the affordability restrictions of Division 30, Section 14-487, I would recommend that should the designated units identified as affordable units fail to retain their affordability restrictions, the applicant would then be required to provide a minimum of six units designated as a workforce housing unit and entire into an agreed upon Workforce Housing Agreement.

Please note; the Housing and Economic Development Committee have recommended the Council appropriate \$497,455 from the local Housing Trust fund to Avesta for the 210 Valley Street affordable housing project. Subsequently, according to the Housing Trust Fund Application, the units must remain affordable for the life of the housing units which is presumed to be a minimum of thirty (30) years.

XII. NEXT STEPS

1. Address staff comments
2. Address additional comments from the Planning Board
3. Prepare final plan submission, including site plan submittal requirements as included in 14-527(e) and (f) for review by the Planning Board
4. Hold Planning Board Hearing

**XIII. ATTACHMENTS
PLANNING BOARD REPORT ATTACHMENTS**

1. Design Review
2. Comments Letter
3. City Arborist Comments
4. Consulting Civil Engineer Comments
5. IZ Summary
6. Zoning Analysis

APPLICANT'S SUBMITTALS

- A- COVER LETTER
- B - LEVEL III APPLICATION CHECKLIST
- C - RIGHT, TITLE & INTEREST
- D - ZONING ASSESSMENT
- E - EASEMENTS
- F - WAIVER REQUESTS
- G - FINANCIAL CAPACITY
- H - TECHNICAL CAPACITY
- I - CONFORMITY WITH LAND USE ORDINANCE
- J - STORMWATER REPORT
- K - EROSION & SEDIMENT REPORT
- L - FIRE DEPARTMENT LETTER
- M - WASTEWATER CAPACITY
- O - ARCH DESIGN NARATIVE
- P - UTILITY COVER
- Q - CONSTRUCTION MANAGEMENT REPORT
- R - SOLID WASTE DISPOSAL
- S - TRANSPORTATION ANALYSIS
- T - STORMWATER MAINTENANCE AGREEMENT
- U - CERIFICATION LETTER
- V - INVITATION LETTER
- W - SIGN IN SHEET
- X - NEIGHBORHOOD MEETING MINUTES
- Y - DESIGN REVIEW RESPONSE LETTER

PLANS

- P1. COVER
- P2. GEN NOTES
- P3. EXISTING CONDITIONS PLAN
- P4. CONSTRUCTION MANAGEMENT PLAN
- P5. SITE PLAN - BASEMENT LEVEL
- P6. SITE PLAN - FIRST FLOOR
- P7. UTILITY PLAN
- P8. GRADING & DRAINAGE PLANS
- P9. FLOOR PLANS
- P10. ELEVATIONS
- P11. PERSPECTIVES
- P12. EROSION & SEDIMENTATION CONTROL NOTES
- P12. SUBDIVISION PLAT
- P13. LANDSCAPE NOTES
- P14. SITE DETAILS

Planning and Urban Development Department Planning Division



Subject: B-2/Multi-family Design Review – 210 Valley Street
Written by: Caitlin Cameron, Urban Designer
Date of Review: Tuesday, June 9, 2020

A preliminary design review according to the *City of Portland Design Manual* Standards was performed for the proposal for new construction of a multi-family dwelling at 210 Valley Street. The review was performed by Caitlin Cameron, Urban Designer, Andrew Tufts, Planner, and Deb Andrews, Historic Preservation Program Manager. The project was reviewed against the *Two-family, Special Needs Independent Living Units, Multiple-family, Lodging Houses, Bed and Breakfasts, and Emergency Shelters* (Section I of the Design Manual) and (d) *B-2 Commercial Business Zone*.

Design Comments:

A1. Overall, staff find this proposal to meet the standard to complement and enhance the nearest residential neighborhood which in this case includes predominantly single-family and small-scale residential buildings with simple massing, flat and gable end roofs, first floor bay window massing variation, and entry stoops. The materials are simple selection with consistent placement on the main form and variation on the details such as the cornice, corner boards, porches/railings. Most buildings are also slightly elevated from the street with a planting buffer.

- Style – Overall, the building style is complementary to the multi-family buildings in the context though much larger in scale. Simple, consistent materials with color/material change at scaling/articulation elements, windows and entries would provide the positive visual interest.
- Façade Materials – The use of clapboard is contextual and complements what is found in this streetscape. **Staff do not support the use of vinyl siding for durability and quality concerns.** Finally, the base is appropriate here to ground the building and differentiate the garage from the residential portion – tile is proposed instead of the typical brick.
- Roof Pitch – the flat roof with an overhanging cornice line is appropriate here and complements the roof treatment found in the multi-family buildings nearby.
- Building Form/Height – The five-story height is mitigated by the emphasis at the fourth floor with a contextual use of overhanging cornice complementary of flat roof treatments in the traditional multi-family buildings. Flat roofs are typical of multi-family buildings. **The rooftop design will be very visible from the Western Promenade (a historic landscape) – can the rooftop appurtenances be moved off the roof? If not, does the Planning Board consider the proposed screening to be adequately integrated with the design and provide sufficient screening from the public park?**
- Window Pattern and Spacing – The windows are consistent type with a regular placement and rhythm.

- Porches and Entryways – The entry appropriately faces the street. The project does not incorporate a stoop/porch given the at-grade condition. Instead, the entrance is more typical of commercial or mixed-use buildings with a canopy and recess.
- Cornerboard and Trim details – The project includes complementary details at the roofline, windows treatment.
- Façade Variation – The introduction of bays successfully relates to the façade variation found in the context and helps to physically break up the longer façade.

A2. Relationship to the Street: The aerial images are very helpful in understanding how the project relates to the street in placement, massing variation, and footprint scale compared with the context. The context includes many small-scale residential buildings placed close to the street edge. This building follows the established street wall with placement at the street with small landscape buffers. Immediately adjacent, within this block, is the Florence House building, another multi-family mid-scale building though still smaller than this proposal. This building is a story taller and is longer than most buildings found within the streetscape. Therefore, it is critical that the relationship to the street, the massing variation, and scale and articulation provide ways to incorporate this contemporary multi-family into this particular context. Staff find the strategies to mostly successful – the bays provide variation in the façades that relates to the traditional buildings which use bays, stacked porches/decks. The ground floor is at grade – this is consistent with Florence House and typical of multi-family buildings but varies from the relationship the small residential buildings have with the street. The entrance is oriented to the street and emphasized with a canopy, recess, and material changes.

A3. Open space: The project includes some planting areas as buffers. Little to no outdoor space is provided to the tenants.

A4. Light/Air + Storage: The living spaces have large windows which should be considered ample and meets the standards.

A5. Parking: The parking is structured and buried beneath the building into the slope of the site. The vehicles are screened by a combination of wall, screen, and fence – **what materials proposed for fence?**

A6. Not applicable

(d) B-2b Commercial Business Zones

Standard (1) a. Urban Street Wall – Building placement is near the property lines on both streets continuing the established pattern of street wall.

Standard (1) b. Mixed Uses – Not applicable

Standard (1) c. Building Entrances – Entrances oriented and direct to the street.

Standard (1) d. Windows – Windows are provided along both street frontages. **Can more openings be introduced on the side façade at the ground level (otherwise blank wall except for the bay projections)?**

Standard (1) e. Façade Character – No active or public portions of this building; Entrances oriented and direct to the street.

Standard (1) f. Building Design – Building is compatible with the residential properties in material treatment, massing variation, articulation elements, and façade composition.

Standard (1) g. Building Materials – Primary material is clapboard with trim details in keeping with traditional residential character of the neighborhood. Vinyl is not considered appropriate for a building of this scale.

Standard (1) h. Building Scale – N/A

Standard (1) i. Landscaping and Buffers – Parking is structured/screened.

Planning and Urban Development Department
Planning Division



May 28, 2020

Avesta Valley Street, LP
Portland, Maine

Acorn Engineering, LLC
65 Hanover St
Portland, ME 04101

RE: Comments for Proposed Development – Level III Site Plan Review

Project Name:	Redeployment of 210 Valley Street	Project ID: PL-001075-2020
Address:	210 Valley Street	
Applicant:	Acorn Engineering, LLC	
Planner:	Andrew Tufts	

Dear Applicant,

Thank you for submitting a level III site plan, subdivision & IZ application for the redevelopment of an existing residential lot into a 5-story, 60-unit apartment building with two levels of structured parking. The subject property is 14,964 square feet in size, and is zoned B-2. The project is being reviewed subject to the following applicable Land Use Code provisions:

- B-2 District

The proposed development is also subject to relevant standards in the City of Portland Technical Manual.

Current Review Comments

Mike Tremblay, DPW P.E. Senior Engineer

- The utility plans do not show the existing sewer lateral (or line marked as SS) to be abandoned but they do show a new sewer connection. There is no terminus manhole or one at the new connection. A new terminus manhole (or at the new connection) would be helpful.
- The soils look good but they plan on lining the stormwater trench on west side of building and sending 100% of the water that falls on this site into the city's stormwater system. The applicant should try to infiltrate some stormwater onsite or justify not including stormwater retention.

- The existing storm main in C Street appears to be a 24" asbestos cement pipe. The Applicant currently shows roof drains being connected to this pipe. Special consideration and coordination may be required. The applicant should work with DPW's Water Resources Department on a solution.
- Raised tree beds are not desirable to DPW in this location. They reduce the effective sidewalk width and make it more difficult to clear snow. The applicant should work with Jeff Tarling, the City Arborist, on the proper tree bed treatment. In any case, the existing tree to remain should not have a granite tree pit installed around it.
- Spot grades for the curb ramps along the site's frontage should be provided.
- Driveway aprons should be constructed using bugs, ramping up to sidewalk level, per the detail attached. The driveway detail used in Sheet C-40 should not be used.
- A waiver will be required for drive aisle width for the upper level parking structure and about two spaces in the lower level parking structure.
- The applicant should correct the orientation of the accessible parking space stencils on the western side of the parking structures.



Andrew Tufts <atufts@portlandmaine.gov>

210 Valley Comments

Jeff Tarling <jst@portlandmaine.gov>
To: Andrew Tufts <atufts@portlandmaine.gov>

Thu, Jun 18, 2020 at 3:40 PM

Hi Andrew -

It is disappointing to see such a large residential structure with below par landscape elements.

Unlike the Avesta residential project on Cumberland Avenue that has a greenhouse on the roof this project offers little outdoor access for residents or relief for the neighbors due to the scale of the project. The intrinsic values of landscape and gardening for residents in large scale projects like this seems imperative. The lack of a landscape plan is an indication.

Tree & landscape comments - Street trees - the proposed tree save is unlikely to be successful and the project should plan on installing all new trees. It was challenging to see what type of trees are specified and would recommend an upright tree form like Musashino Zelkova or similar, the Blue Point Juniper at the back property line or Arborvitae should be 6-7' H at planting. Serbian Spruce might be a possible tree, note the ones successfully growing at the MMC on Gilman Street near the energy building.

Overall, it would have been ideal to build in some landscape elements that residents could enjoy, expanding the Valley Street community garden could be an option or assisting with an element proposed in the Western Promenade Master Plan that would serve the nearby residents.

Portland Parks & Recreation can work with the project team on concepts if interested.

Thanks,

Jeff

Jeff Tarling
City Arborist - City of Portland Maine
Parks, Recreation & Facilities Department
Forestry & Horticulture
212 Canco Road - Suite A
Portland, ME. 04103
(207) 808-5400
jst@portlandmaine.gov

On Thu, Jun 18, 2020 at 9:49 AM Andrew Tufts <atufts@portlandmaine.gov> wrote:

[Quoted text hidden]



Andrew Tufts <atufts@portlandmaine.gov>

210 Valley Street

1 message

Lauren Swett <lswett@woodardcurran.com>
To: Andrew Tufts <atufts@portlandmaine.gov>

Thu, Jun 18, 2020 at 8:32 AM

Hi Andrew,

I have reviewed 210 Valley Street, specifically focusing on the stormwater design.

The project is required to comply with Maine DEP Chapter 500 and City of Portland Technical Manual Section 5 regulations for stormwater management. The project will be creating 8,273 square feet of new impervious surface and is required to comply with the Basic, General, and Flooding Standards.

- Basic Standards – the project has included adequate erosion and sedimentation control for the proposed construction work.
- General Standards – The project is providing for water quality treatment for greater than the required area using filter cartridges and a subsurface stormwater storage system.
- Flooding Standards – The project is required to reduce stormwater flows from the pre-development to post-development condition. The Applicant has rounded peak flow rates in their stormwater report to the nearest whole number, and has noted that post development peak flows will not exceed predevelopment levels. Upon review of the stormwater calculations, it appears that flows do increase. We acknowledge that the flows and increases are relatively small, remaining below 1 cfs until the post-development 25-year storm event (increasing from 0.68 CFS to 1.38 CFS). The stormwater modeling does not consider all of the factors that can impact flows on a small site like this (rip rap, bends in pipe, etc.), which is why the Applicant chose to round to the nearest whole number. The project is also able to connect into a separated stormdrain with increased capacity over the prior combined system. DPW has provided some feedback asking that the applicant consider infiltration. We understand the aversion to designing for infiltration in an urban area like this, especially considering the close proximity of the system to adjacent properties and the uncertainty of urban fill. We suggest that following the workshop the Applicant meet with DPW to discuss the small increases, and a waiver of the very small increases in flow is likely acceptable.

The proposed stormdrain connection in C Street uses an 8" pipe. All pipe connections of 8 inches or greater require a manhole for the connection. Similarly, a direct sewer connection is proposed into the existing sewer pipe. I do not see a pipe size included. The Applicant should confirm pipe size, and if it is 8 inches or larger, a manhole will be required.

A general note is included on the grading plan that the sidewalk on the north side of C Street will need to be returned to City Standards after installation of the underground electric lines. Pavement repair is shown, but the extent of repair to include sidewalk brick and curing should be made clear.

Let me know if there are any questions, in particular on the Flooding comment. They have actually provided a decent amount of storage on site with the space they have. It seems like we can easily work through it for their approval. If it's helpful for me to wait in the background during your PB meeting next week, let me know.

Thanks,

Lauren

All Woodard & Curran consulting employees are currently working from home. I do not have regular access to mail or other deliveries made to the office. You can still reach me via email or at my direct or cell phone numbers.

Lauren Swett, P.E.*

Technical Manager

Woodard & Curran

[41 Hutchins Drive](#)

[Portland, Maine 04102](#)

Phone: (207)558-3763 (direct)

(207)219-3591 (cell)

(800)426-4262 (office)

Email: lszett@woodardcurran.com

*Licensed in Maine and Wisconsin

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www.woodardcurran.com

M.ASCE

Chair, Leader Training Committee

American Society of Civil Engineers

<http://regions.asce.org/leader-training-committee/>



Andrew Tufts <atufts@portlandmaine.gov>

210 Valley Street

Victoria Volent <vvolent@portlandmaine.gov>
To: Andrew Tufts <atufts@portlandmaine.gov>

Wed, Jun 17, 2020 at 12:16 PM

Hi Andrew,

210 Valley Street proposes to construct 60 units of rental housing. The project would include eleven studio, twenty-five one-bedroom, fourteen two-bedroom, and ten three-bedroom units.

This project triggers IZ as it would create ten or more new dwelling units through new construction.

Avesta has been before the Housing Committee and Economic Development Committee requesting funding for [210 Valley Street](#). In their application they noted 36 units would be affordable at 50% area median income, 12 units would be affordable at 60% area median income, and 12 units would be at market rate. Based on the requirements outlined in Section 14-487, the developer is required to provide a minimum of six units, on-site, for households earning at or below 100% AMI. The applicant has elected to provide forty-eight units, on-site, for households earning at or below 60% AMI. As such, the applicant is providing a greater percentage of affordable units at lower income targets than required by the Inclusionary Zoning Conditional Use application.

As 210 Valley Street exceeds the affordability restrictions of Division 30, Section 14-487, I would recommend that should the designated units identified as affordable units fail to retain their affordability restrictions, the applicant would then be required to provide a minimum of six units designated as a workforce housing unit and entire into an agreed upon Workforce Housing Agreement.

Please note; the Housing and Economic Development Committee have recommended the Council appropriate \$497,455 from the local Housing Trust fund to Avesta for the 210 Valley Street affordable housing project. Subsequently, according to the Housing Trust Fund Application, the units must remain affordable for the life of the housing units which is presumed to be a minimum of thirty (30) years.

Thank you,

Victoria

Victoria Volent
Housing Program Manager
Housing and Community Development
Phone: 207-482-5028
Fax: 207-874-8949
www.portlandmaine.gov

[Quoted text hidden]



Andrew Tufts <atufts@portlandmaine.gov>

Zoning Analysis - 210 Valley St. - PL-001075-2020

1 message

Ann Machado <amachado@portlandmaine.gov>
To: Andrew Tufts <atufts@portlandmaine.gov>

Fri, Jun 19, 2020 at 3:19 PM

Avesta Valley Street, LP is proposing to redevelop the property at 210 Valley Street with a five story, 60 unit apartment building. Over 75% of the units will meet the definition of low income units as defined in section 14-485 in Division 30 (Affordable Housing) of the City's Land Use Ordinance. The property is located in the B2 (Community Business) Zone.

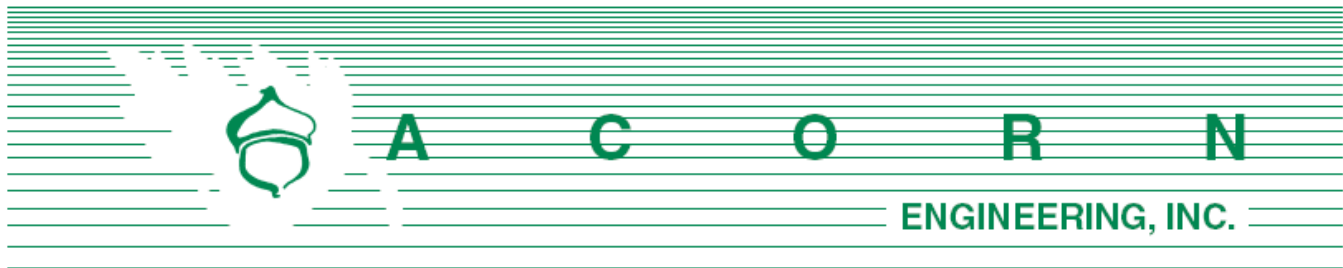
The dimensional requirements for the B-2 zone are outlined in section 14-185. There is no minimum street frontage requirement or a minimum front yard or side yard setback requirement. There is also no impervious surface ratio requirement because it is a residential use. The maximum front yard setback of 10 feet and the required minimum street frontage requirement of 20 feet are being met.

In the B-2 zone, the minimum rear yard setback is 10 feet, the maximum building height allowed is 45 feet and the lot area per dwelling-unit requirement is 435 square feet.. Since over 75% of the residential units will be rented or sold as low income units the applicant is able to use section 14-488 which allows the applicant to use the bonuses for density, additional height and setback reductions. The bonus density allowed is 2,5 x the base. The base is the number of residential units allowed in the B-2 zone.. The property is 14,964 sf. Divide that by the lot area per dwelling unit requirement of 435 sf, and the property could have 34 dwelling units. Multiply that by the bonus of 2,5 and the property could have 85 residential units. The applicant is proposing to build 60 residential units. The height bonus allows 25 additional feet, so the maximum allowable height is 70 feet. The applicant has stated that the height is 52.5 feet which appears to be measured from the average grade. Finally, under section 14-488 the required minimum rear yard setback can be reduced ten feet to a zero foot setback. The proposed rear setback is 5 feet.

The proposed project appears to meet the dimensional requirements of the B2 zone with the bonuses allowed under section 14-488..

Ann Machado
Zoning Administrator

Ann Machado
Zoning Administrator
Permitting and Inspections Department
City of Portland, Maine
(207) 874-8709
amachado@portlandmaine.gov



Department of Planning & Urban Development
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

March 31, 2020

Subject: Level III Final Site Plan/Subdivision Application
Redevelopment of 210 Valley St. Portland, Maine

To Whom It May Concern:

On behalf of Avesta Valley Street, LP, we are pleased to submit the accompanying package of submission materials related to the proposed redevelopment of 204-210 Valley St. This submission package is intended to meet the City's requirements as outlined in the Level III Site Plan Application procedure. The proposal includes the construction of a 5-story, 60-unit apartment building with two levels of covered parking. The project is located within the City's B-2 Zoning District and complies with the permitted uses.

Per *Division 30. Affordable Housing* of the City's Land Use ordinance, the project is seeking incentives such as setback reductions and density/setback bonuses for providing affordable units in exceedance of 75% of the total unit count. In accordance with Section 14-486 of the City's Land Use Code, as a project proposing 25% or more of workforce housing units, we are requesting a 25% reduction in development fees and building permit fees set at \$8.25 per \$1,000 of the Cost of Work. We are also requesting a prioritized and expedited review of this application, consistent with the City's ordinance.

We are pleased to submit this application which will significantly increase the City's affordable housing stock. The project will also improve the overall sense of place and consistency on the streetscape by filling in the gap that is currently created by surface parking and vacant land. Furthermore, along the project frontage, the sidewalks will be rebuilt with street trees and bicycle hitches incorporated into the design.

40 parking spaces will be provided which is anticipated to be sufficient for the proposed 60-unit and 94-bedroom counts based on industry data and similar projects developed by the Applicant. Lastly, the site's general vicinity to goods, services, and the downtown core will promote multimodal transportation. The project is within a quarter mile of two METRO bus stops and will provide a dedicated room within the building for secure bicycle storage.

Avesta Valley Street, LP and the design team look forward to your review of this project. If you have any questions regarding these materials or the completeness of the application materials, please contact us within the next five (5) days.

Sincerely,

William H. Savage, P.E.
Principal
Acorn Engineering, Inc.

The following documents and drawings will be uploaded onto the City's electronic submission site per the procedure outlined in the application:

Documents:

- Section A: Cover Letter
- Section B: Level III Final Site Plan Application & Checklist
- Section C: Right, Title, Interest
- Section D: Zoning Assessment
- Section E: Summary of Written Easements
- Section F: Waiver Table
- Section G: Financial Capacity
- Section H: Technical Capacity
- Section I: Conformity with Land Use Ordinance
- Section J: Stormwater Management Report
- Section K: Erosion & Sedimentation Control Report
- Section L: Fire Department Letter
- Section M: Wastewater Capacity
- Section N: Lighting
- Section O: Architectural Design Narrative
- Section P: Utility Cover
- Section Q: Construction Management Plan
- Section R: Solid Waste Disposal
- Section S: Transportation and Parking Analysis

Drawings:

- Civil Site Plan Set, Dated 3/27/2020
- Architectural Plan Set, Dated 3/26/2020



CITY OF PORTLAND
Planning & Urban Development Department

LEVEL II and LEVEL III SITE PLAN
GENERAL DOCUMENT AND DRAWINGS CHECKLIST

Please submit each document as a separate PDF file
Please confirm by electronically checking the boxes to the left

**** PLEASE FILL OUT AND UPLOAD SEPARATELY THE ZONING TABLE
AND WAIVER TABLE AS NOTED BELOW ****

GENERAL APPLICATION DOCUMENTS

Yes ☒	NA ☐	Project Description Cover Letter with detailed project description
Yes ☒	NA ☐	Completed Checklist – Level I: Site Alteration (this document)
Yes ☒	NA ☐	Right, Title and Interest Deeds, leases, or purchase and sales agreements
Yes ☐	NA ☒	Evidence of State or Federal Approvals Permits or letters of non-jurisdiction, if applicable
Yes ☒	NA ☐	Zoning Assessment Table listing required and proposed uses and dimensional standards Zoning Assessment Table
Yes ☒	NA ☐	Existing and/or Proposed Easements or Covenants, applicable. Evidence of existing easements and any proposed easements
Yes ☒	NA ☐	Waiver Requests Written request for waiver describing request and reason Waiver Table
Yes ☒	NA ☐	Financial Capability Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes ☒	NA ☐	Technical Capability Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

**LEVEL II AND LEVEL III SITE PLAN
STANDARDS AND SUBMISSION CHECKLIST**
Provide assessment of compliance with standards and include
supplemental documentation, as applicable
Please Submit each document as a separate PDF file

TRANSPORTATION

Yes ☐	NA ☒	Transportation Analysis- Traffic Impact (14-526 (a) 1) - Provisions for pedestrian, bicycle, vehicle, and loading circulation and incremental volume of traffic impacts - Traffic Impact Study (Technical Manual, Section 1) if applicable
Yes ☒	NA ☐	Access and Circulation (14-526 (a) 2 a) - Access and internal circulation, addressing ADA access - Access and egress impacts on traffic flows - Description and use of drive-up features, if applicable
Yes ☐	NA ☒	Loading and Servicing (14-526 (a) 2 b) - Loading and servicing needs, route and travel way geometrics for deliveries - Turning templates for delivery vehicles, if applicable
Yes ☒	NA ☐	Sidewalks (14-526 (a) 2 c) - Sidewalks and condition along street frontages and internal walkways - Engineered details for ADA ramps and public sidewalk details meeting sidewalk materials policy and ADA ramp construction details as applicable (Technical Manual, Section 1)
Yes ☒	NA ☐	Public Transit (14-526 (a) 3), if applicable - Existing available transit services - Proposed site plan design details, such as easement, pad base, and shelter
Yes ☒	NA ☐	Off-Street Parking: Vehicle & Motorcycle/Scooter) (14-526 (a) 4 a and c) - Expected parking demand, proposed parking supply, ADA parking, and applicable Zoning Requirements - Address Technical Manual standards (Section 1) for curb cut separation and parking lot layout and locate on site plan
Yes ☒	NA ☐	Bicycle Parking (14-526 (a) 4 b) - Address bicycle parking requirements and identify locations on-site - Construction details for bike racks (Technical Manual, Section 1)
Yes ☒	NA ☐	Snow Storage (14-526 (a) 4 d) Management plan for snow removal and locate snow storage areas on plan
Yes ☐	NA ☒	Traffic Demand Management (TDM) (14-526 (a) 5), if applicable Develop TDM with Trip Reduction Targets and Strategies

ENVIRONMENTAL AND LANDSCAPE FEATURES		
Yes ☐	NA ☒	Preservation of Significant Natural Features (14-526 (b) 1), if applicable • Trees, plants, habitats listed on State or Federal list of endangered or threatened • High and moderate value waterfowl and wading habitat • Aquifers on Casco Bay Islands • Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) • Proposed preservation areas and protection measures • Documentation from environmental consultants, determinations from applicable state agencies
Yes ☒	NA ☐	Landscaping and Landscape Preservation (14-526 (b) 2 a) • Preservation of trees and preservation within required zoning setbacks (Technical Manual, Section 4) • Protection measures of existing vegetation during construction • Protection measures within Shoreland Zone, if applicable
Yes ☒	NA ☐	Site Landscaping (14-526 (b) 2 b) • Screening and buffering of service areas and between non-residential and residential uses • Planting plans with plant schedule and sizes (Technical Manual, Section 4)
Yes ☐	NA ☒	Parking Lot Landscaping (14-526 (b) 2 b ii), if applicable • Landscaped islands within parking areas (Technical Manual, Section 4)
Yes ☒	NA ☐	Street Trees (14-526 (b) 2 b iii) • Existing Heritage or Feature Trees on site and measures to preserve • Identify street trees on the plan meeting the site plan and Technical Manual standards (Section 4) or identify alternative measures, if applicable
ENVIRONMENTAL AND STORMWATER		
Yes ☒	NA ☐	Water Quality, Stormwater Management and Erosion Control (14-526 (b)3 a) • Stormwater report in compliance with Section 5 of Technical Manual and DEP Chapter 500 stormwater for basic, general and flooding standards, as applicable • Erosion control plan and measures • Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater, as applicable • Subsurface sanitary sewage disposal and groundwater protection

PUBLIC INFRASTRUCTURE AND SAFETY		
Yes ☒	NA ☐	Consistency with City Master Plans (14-526 (c) 1) - Identify consistency with master plans - Proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes ☒	NA ☐	Public Safety and Fire Prevention (14-526 (c)) - Address Crime Prevention through Environmental Design (CPTED) (Technical Manual, Section 3) - Emergency vehicle access - Address consistency with public safety standards (Technical Manual, Section 3) - Submit a code summary referring NFPA 1 and all Fire Department standards (Technical Manual, Section 3) – Fire Checklist
Yes ☒	NA ☐	Availability and Adequacy of Public Utilities (14-526 (c) 3) (Technical Manual, Sections 2 & 9) - Electrical services, including providing underground services - Identify existing and proposed connections for public utilities and required public utility upgrades - Sewer line connections are required, if there is a main within 200 feet - Proposed solid waste management facilities on-site and management for the site - Written evidence of the ability to serve from utility companies, as applicable
SITE DESIGN		
Yes ☒	NA ☐	Massing, Ventilations and Wind Impact (14-526 (d) 1) - Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable - Bulk, location or height impacts on adjoining structures - Identify and locate HVAC equipment and venting away from public spaces and residential properties - Identify screening and manufacturing specifications for noise, if applicable
Yes ☒	NA ☐	Shadows (14-526 (d) 2), if applicable Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes ☒	NA ☐	Snow and Ice Loading (14-526 (d) 3) Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes ☐	NA ☒	View Corridors (14-526 (d) 4), if applicable Protection of designated view corridors (Portland Design Manual, Appen. 1)

Yes ☒	NA ☐	Historic Resources (14-526 (d) 5), if applicable • Identify developments within Historic Districts or affecting Designated Landmarks • Certificate of Appropriateness or other evidence • Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required • Address preservation and documentation of Archaeological Resources
Yes ☒	NA ☐	Exterior Lighting (14-526 (d) 6) • Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12) • Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)
Yes ☒	NA ☐	Noise and Vibration (14-526 (d) 7) • Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements
Yes ☒	NA ☐	Signage and Wayfinding (14-526 (d) 8), if applicable • Signage plan showing the location, dimensions, height and setback of all existing and proposed signs. Signs in Historic Districts are reviewed by Historic Preservation staff • Proposed commercial and directional signage on site
Yes ☒	NA ☐	Zone Related Design Standards (14-526 (d) 5) • Address Historic Preservation Design Review, if applicable • Address any applicable design review standards by zone • Address submission requirements from Design Manual, page 1, addressing neighborhood context • Description of exterior materials, color, finish, and samples
Construction Management Plan		
Yes ☒	NA ☐	Construction Management Plan • Construction Management Document and Plan

**LEVEL II AND LEVEL III SITE PLAN
DRAWINGS CHECKLIST**

Please upload the following DRAWINGS with the listed details into e-Plan as separate pdfs

RECENT BOUNDARY SURVEY (stamped by Maine Licensed Surveyor)

- ☒ Must be in compliance with Technical Manual, Section 13

SITE PLAN(s) (stamped by Maine Licensed Engineer) including:

Existing Conditions

- ☒ Approximate location of structures on abutting property
- ☒ Topography
- ☐ Locate water courses
- ☐ Delineate wetlands
- ☒ Zone lines

Proposed Site Plan

- ☒ Ground floor area, and grade elevations for all buildings

Access, Circulation, and Parking

- ☒ Streets and intersections adjacent to site, any proposed geometric modifications
- ☒ Location, dimensions and materials of all existing and proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- ☒ Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- ☒ Location and dimensions of proposed loading areas
- ☒ Existing and proposed transit infrastructure with dimensions/ engineering specifications
- ☒ Location of vehicle and bicycle parking with dimensions and engineering specifications

Site Considerations

- ☒ Identify snow storage areas
- ☒ Location of fire hydrants
- ☒ Location of solid waste management facilities

UTILITY PLAN including:

- ☒ Existing utilities on site and within public streets
- ☒ Location, sizing and directional flows of all existing and proposed utilities
- ☒ Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- ☒ Electric utility infrastructure

GRADING AND DRAINAGE PLAN including:

- ☒ Existing grades and drainage
- ☒ Proposed grades
- ☒ Proposed stormwater management meeting Technical Manual (Section 5), standards
- ☒ Location and proposed alteration of a water course
- ☒ Preservation or alteration of wetlands

EROSION CONTROL

- ☒ Must be in compliance with Technical Manual, Section 5

LANDSCAPE PLAN including:

- ☒ Existing vegetation to be preserved and preservation measures
- ☒ Proposed landscaping and buffers
- ☒ Planting schedule

RECORDING PLAT, if applicable
☒ If Subdivision, must be in compliance with requirements of Section 14-496 (b)
ARCHITECTURAL PLANS AND RENDERINGS including:
☒ Exterior building elevations, color renderings, illustrations of all sides
☒ Location and dimensions of all existing and proposed HVAC and mechanical equipment, all proposed screening
☒ Provide context drawings, if applicable (Design Manual, page 1)
☒ Floor plans



If Subdivision, must be in compliance with requirements of Section 14-496 (b)

ARCHITECTURAL PLANS AND RENDERINGS including:
☒ Exterior building elevations, color renderings, illustrations of all sides
☒ Location and dimensions of all existing and proposed HVAC and mechanical equipment, all proposed screening
☒ Provide context drawings, if applicable (Design Manual, page 1)
☒ Floor plans



Exterior building elevations, color renderings, illustrations of all sides



Location and dimensions of all existing and proposed HVAC and mechanical equipment, all proposed screening



Provide context drawings, if applicable (Design Manual, page 1)



Floor plans

C. Right, Title, and Interest

Please refer to the attached deed demonstrating the Applicant's Right, Title, Interest.



QUITCLAIM WITH COVENANT DEED

Valley Bayside, LLC, a Maine limited liability company, for consideration paid, grants, with Quitclaim Covenant, to Avesta Housing Development Corporation, a Maine corporation with a mailing address of 307 Cumberland Avenue, Portland, Maine 04101, land located at or near 204 Valley Street, City of Portland, County of Cumberland, Maine and more particularly described on Exhibit A attached hereto.

For source of Grantor's title, see Short Form Quitclaim Deed with Covenant from T & T Investment to Grantor dated August 15, 2002, and recorded in the Cumberland County Registry of Deeds in Book 17960, Page 28.

IN WITNESS WHEREOF, Valley Bayside, LLC has caused this instrument to be executed by Peter T. Horsman and Scott A. Raymond, its duly authorized Managers, as of this 19 day of June, 2009.

WITNESSETH:

VALLEY BAYSIDE, LLC

[Signature]
Name: Thomas W. Moulton

By:

[Signature]
Peter T. Horsman
Its duly authorized Manager

[Signature]
Name: Thomas W. Moulton

By:

[Signature]
Scott A. Raymond
Its duly authorized Manager

State of Maine
County of Cumberland

June 19, 2009

Personally appeared before me the above-named Peter T. Horsman, Manager of Valley Bayside, LLC as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in said capacity and the free act and deed of said company.

AND SCOTT A
RAYMOND

[Signature]
Print name:
Notary Public/Attorney at Law
My commission expires:

DEBORAH KELLER
Notary Public, Maine
My Commission Expires October 17, 2009

SEAL

MAINE REAL ESTATE TAX PAID

Exhibit A

A certain lot of parcel of land situated on the Westerly side of Valley Street in the City of Portland, County of Cumberland and State of Maine, further bounded and described as follows:

Beginning at a capped iron pin marked PLS #1313 at a point on the Westerly sideline of Valley Street. Said pin is S 07°02'04" E a distance of 50.00' from the intersection of the Westerly sideline of Valley Street with the Southerly sideline of "C" Street. Said pin also marks the Southeasterly corner of land now or formerly of Helen Dallas Andrews as described in Deed Book 7346, Page 184, recorded at the Cumberland County Registry of Deeds;

Thence S 07°02'04" E by the sideline of Valley Street a distance of 100.00' to a capped iron pin marked PLS #1313 at land now or formerly of said C & D Associates as described in Deed Book 6740, Page 344, recorded at the Cumberland County Registry of Deeds;

Thence, S 83°00'06" W by said C & D Associates a distance of 101.85' to a capped iron pin marked PLS #1313 to the Southeasterly corner of Lot 43 as shown on Plan of Lands on St. John Street by William A. Goodwin, City Civil Engineer, dated July 1879, and recorded in the Cumberland County Registry of Deeds Plan Book 4, Page 21;

Thence, N 06°53'58" W by Lots 43 and 41 as shown on said plan a distance of 99.98' to a capped iron pin marked PLS #1313 at land now or formerly of Gordon Andrews as described in Deed Book 4579, Page 177, recorded at the Cumberland County Registry of Deeds; and

Thence, N 82°59'15" E by land of said Andrews and said Helen Dallas Andrews a distance of 101.61' the Westerly sideline of Valley Street and the point of beginning.

Received
Recorded Register of Deeds
Jun 19, 2009 02:49:24P
Cumberland County
Pamela E. Lovley

DLN: 1001940068852

WARRANTY DEED

SUMMIT, LLC

A Maine limited liability company with a mailing address of 10 Clifton Road, Falmouth, ME 04105

for consideration paid, grants to

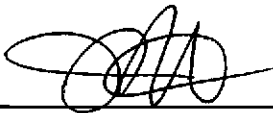
AVESTA HOUSING DEVELOPMENT CORPORATION

A Maine non-profit corporation with a mailing address of 307 Cumberland Avenue, Portland, ME 04101, with WARRANTY COVENANTS, the following described real property in Portland, County of Cumberland and State of Maine:

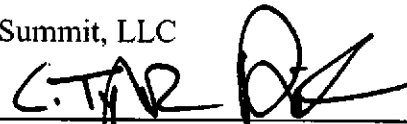
See Exhibit A attached hereto and made a part hereof.

Also hereby conveying all rights, easements, privileges, and appurtenances, belonging to the premises hereinabove described.

WITNESS my hand and seal this 22nd day of August, 2019.



Summit, LLC



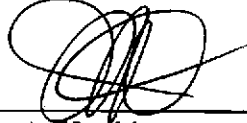
By: C. Tyler Brinkmann
Its: Manager

State of Maine
Cumberland, ss.

August 22, 2019

Personally appeared before me the above-named C. Tyler Brinkmann and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of Summit, LLC.

Before me,



James A. Hopkinson, Attorney-at-Law

EXHIBIT A
(6 C Street, Portland)

A certain lot or parcel of land situated on the southerly side of C Street in City of Portland, County of Cumberland and State of Maine and being more particularly bounded and described as follows:

Commencing at a point on the southerly side of C Street, 40 feet westerly from the westerly side of Valley Street and at the northwesterly corner of Parcel 1 as described in a deed given by Matie Enterprises, et al to Robert H Fraser, et al dated November 30, 2012 and recorded in Cumberland County Registry of Deeds in Book 30183, Page 137;

Thence southerly along the westerly side of Parcel 1 a distance of fifty (50) feet to land now or formerly of Avesta Housing Development Corporation as described in a deed dated June 19, 2009 and recorded in said Registry of Deeds in Book 27010, Page 287;

Thence westerly along the northerly side of said land of Avesta Housing Development Corporation a distance of sixty (60) feet to the easterly side of land now or formerly of St. John Street, LLC as described in deed dated September 19, 2013 and recorded in said Registry of Deeds in Book 31030, Page 192;

Thence northerly along the easterly side of said land of St. John Street, LLC a distance of fifty (50) feet to the southerly side of C Street;

Thence easterly along the southerly side of C Street a distance of sixty (60) feet to the point of beginning.

Meaning and intending to convey, and hereby conveying Parcel 2 as described in a deed dated November 30, 2012 and recorded in said Registry of Deeds in Book 30183, Page 137.

For title reference, see deed given by Robert H. Fraser and Michael B. Fraser to Summit, LLC, dated January 4, 2018 and recorded in the Cumberland County Registry of Deeds in Book 34582, Page 138.

DLN: 1001940068854

WARRANTY DEED

LIGHTHOUSE LLC

A Maine limited liability company with a mailing address of 10 Clifton Road, Falmouth, ME 04105

for consideration paid, grants to

AVESTA HOUSING DEVELOPMENT CORPORATION

A Maine non-profit corporation with a mailing address of 307 Cumberland Avenue, Portland, ME 04101, with WARRANTY COVENANTS, the following described real property in Portland, County of Cumberland and State of Maine:

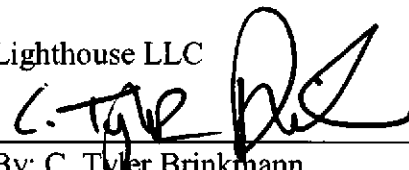
See Exhibit A attached hereto and made a part hereof.

Also hereby conveying all rights, easements, privileges, and appurtenances, belonging to the premises hereinabove described.

WITNESS my hand and seal this 22nd day of August, 2019.



Lighthouse LLC


By: C. Tyler Brinkmann
Its: Manager

State of Maine
Cumberland, ss.

August 22, 2019

Personally appeared before me the above-named C. Tyler Brinkmann and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of Lighthouse LLC.

Before me,

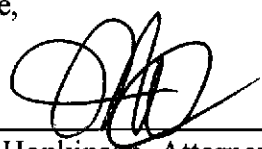

James A. Hopkinson, Attorney-at-Law

EXHIBIT A
(210 Valley Street, Portland)

A certain lot or parcel of land, together with the building thereon situated in the City of Portland, County of Cumberland and State of Maine, and bounded and described as follows:

Beginning at a stake on the southwest corner of B and C Streets, so-called, in said City of Portland; thence running in a westerly direction along the southerly sideline of said C Street for a distance of 40 feet to a point; thence running southerly and by an interior angle of 90° for a distance of 50 feet to a point; thence running easterly and by interior angle of 90° for a distance of 40 feet to a point on the westerly sideline of said B Street (now known as Valley Street), thence northerly and along the westerly sideline of said B Street for a distance of 50 feet to the point of beginning.

Meaning and intending to convey, and hereby conveying Parcel 1 as described in a deed dated November 30, 2012 and recorded in the Cumberland County Registry of Deeds in Book 30183, Page 137.

For title reference, see deed given by Robert H. Fraser and Michael B. Fraser to Lighthouse LLC, dated January 4, 2018 and recorded in the Cumberland County Registry of Deeds in Book 34580, Page 173.

PURCHASE AND SALE AGREEMENT

THIS AGREEMENT made and entered into as of September 13, 2019, by and between AVESTA HOUSING DEVELOPMENT CORPORATION, a Maine nonprofit corporation with a place of business and mailing address of 307 Cumberland Avenue, Portland, Maine 04101 ("Seller") and AVESTA VALLEY STREET LP, a Maine limited partnership with a place of business and mailing address of 307 Cumberland Avenue, Portland, Maine 04101 (the "Buyer")

WITNESSETH:

FOR VALUABLE CONSIDERATION, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. **Property to be Sold.** Seller agrees to sell and Buyer agrees to buy certain lots or parcels of land with the buildings and improvements thereon, located at 204 and 206 Valley Street and 6 C Street in Portland, Maine and more particularly described in deeds to Seller recorded in the Cumberland County Registry of Deeds in Book 27010, Page 287, Book 35910, Page 297 and Book 35910, Page 299, together with all appurtenant rights and easements (collectively the "Premises").
2. **Purchase Price.** Buyer shall pay to Seller the sum of \$629,500.00, by wire transfer or bank cashier's check at closing.
3. **Title.** Seller shall convey the Premises to Buyer at the closing in fee simple with good and marketable title, free and clear of all liens, claims and encumbrances. In the event that Seller is unable to convey title as aforesaid, Seller shall be given a reasonable period of time (not to exceed 30 days), after notice in writing, in which to remedy any title defects. In the event that said defects cannot be corrected or remedied or in the event that Seller elects not to remedy same, then this Agreement, and Seller's and Buyer's obligations hereunder, will terminate. Buyer may, at Buyer's option, elect to close notwithstanding such defects as may exist.
4. **Closing.** This transaction shall be closed on or before December 31, 2021 at 5:00 P.M. (the "Closing Date") at the offices of Buyer's lender, or if the Seller and Buyer shall mutually agree in advance at another time and place. At the closing, Seller shall execute and deliver to Buyer a Quitclaim Deed with Covenant to the Premises and such other customary certificates and affidavits as Buyer shall request.
5. **Inspection.** At all reasonable times upon reasonable prior notice, Buyer and any prospective lender or investor of Buyer's shall have the right to enter the Premises and perform, at Buyer's expense, any and all inspections, tests, surveys or other due diligence inquiries with respect to the Premises, the Personal Property, the Security Deposits, the Rental Assistance and the Leases as Buyer deems necessary or appropriate. Buyer agrees to return the Premises as nearly as possible to their original condition after all of such tests and inspections. Seller shall cooperate with Buyer in such inspections. In the event Buyer is not satisfied for any reason by the results of such due diligence inspections, Buyer shall have the option of terminating this

Agreement by written notice to Seller. Without limiting the generality of the foregoing, this Agreement and Buyer's purchase of the Premises are subject to a determination by Maine State Housing Authority as to the desirability of the Premises for Buyer's intended use as a result of the completion of the environmental review process required by the United States Department of Housing and Urban Development, and if such determination is unsatisfactory, Buyer may terminate the this Agreement.

6. Possession. Seller shall deliver the Premises to Buyer at closing free and clear of all leases, tenancies and occupancies by any person.

7. Costs. The recording fee for the deed and any expenses related to Buyer's financing will be paid for by Buyer. The parties shall share equally the cost of all real estate transfer taxes.

8. Buyer's Conditions Precedent. Buyer's obligation to close hereunder is subject to the following: Buyer shall have received one or more binding written commitments from institutional lenders and/or investors committing to finance Buyer's acquisition of the Premises, and any rehabilitation or construction contemplated by Buyer. In addition, Buyer shall have received all necessary permits and approvals for the construction of an affordable rental housing project. Buyer agrees to exercise diligent efforts to secure such financing and approvals. If the conditions described in this Section are not satisfied as of the Closing Date, then Buyer shall have the option of terminating this Agreement in writing.

9. Default and Remedies. If either party defaults hereunder, and such default is not cured within thirty (30) days of written notice of default, the sole remedy of the nondefaulting party shall be to terminate this Agreement..

10. Assignment. Buyer may assign this Agreement and all its rights and obligations hereunder to an affiliate of Buyer's. Upon notice of and consent to such assignment, Seller agrees to look solely to such affiliate for performance of the obligations of the Buyer hereunder.

11. Brokers. The parties represent to each other that neither has had any dealings with any real estate broker in connection with this transaction. Each party agrees to indemnify the other from and against the claims of any brokers arising from this transaction, which indemnity shall survive the closing and shall include reasonable costs of collection, including reasonable attorneys' fees.

12. Miscellaneous. Time is of the essence of this Agreement. All notices, demands and other communications hereunder shall be in writing and shall be deemed to have been duly given on the date of service if served personally on the party to whom notice is to be given, or on the first business day after mailing if mailed to the party to whom notice is to be given by first class mail, postage prepaid, certified, return receipt requested, addressed to the recipient at the addresses set forth at the beginning of this Agreement. Either party may change addresses for purposes of this paragraph by giving the other party notice of the new address in the manner described herein. This Agreement constitutes the entire agreement between Seller and Buyer, superseding all prior agreements between Seller and Buyer, and there are no other agreements,

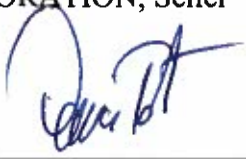
understandings, warranties or representations between Seller and Buyer. This Agreement will inure to the benefit of and bind the respective successors and assigns of Seller and Buyer. This Agreement may be simultaneously executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, but all of which together shall constitute one and the same instrument. As used in this Agreement, the singular number shall include the plural, the plural the singular, and the use of the masculine shall include, where appropriate, the feminine and neuter. This Agreement shall be governed by and construed in accordance with the laws of Maine. If any provision of this Agreement is determined to be invalid or unenforceable, it shall not affect the validity or enforcement of the remaining provisions hereof.

IN WITNESS WHEREOF, Seller and Buyer have executed this Agreement as of the date written above.

WITNESS:

AVESTA HOUSING DEVELOPMENT
CORPORATION, Seller



By: 

Dana Totman, its President

AVESTA VALLEY STREET LP, Buyer

By: Pinecone Housing Corporation, its
General Partner



By: 

Dana Totman, its President

Portland, Maine



Yes. Life's good here.

Planning & Urban Development Department

ZONING ANALYSIS Relevant Zone(s) B-2

All Projects:

	Required	Proposed
Lot Size	None	14,964 SF
Area Per Dwelling Unit	435 SF *	249.4 SF
Minimum Street Frontage	20'	250'
Front Yard Minimum	None	0.5'
Front Yard Maximum	10'	2.85'
Rear Yard	10' *	5'
Yard Right	None	
Yard Left	None	
Side Street Setback	None	N/A
Step Back	10'	=setback
Maximum Lot Coverage	100%	94%
Minimum Lot Coverage	None	
Maximum Height	45' *	52.50'
Open Space	None	
Maximum Impervious Area	None	
Pavement Setback	None	N/A
Floor Area Ratio	None	N/A
Off Street Parking Spaces	60	39
Loading Bays	N/A	N/A
Other 1		
Other 2		
Other 3		

* See Affordable Housing Density Bonus Chart below

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density	2.5 x base	86	60
Height	25 ft	70 ft	52.50 ft
Setback Reduction	10 ft	0 ft	5 ft
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional): Per 75% Low Income, density inceases from 34 to 86 units			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

E. Summary of Written Easements

There are no existing easements identified by Owen Haskell, Inc. on the Existing Conditions Plan.

There are no proposed easements as part of the project. The proposed submersible transformer will be located within the City ROW and a license will be required from the City.



Standard to be Waived: Cite Ordinance or Technical Manual Standard	Cite Standard Language: Cite specific language of applicable Ordinance or Technical Manual Standard	Waiver Being Sought: Describe waiver being sought. Ex. – We are requesting a two-way parking lot drive aisle width of 20' feet.	Justification for Waiver: Address specific waiver criteria, if applicable, and document reasons for the waiver request.
Technical Manual 1.7.2.3 Driveway Width	Any site with driveway access to a street shall have a minimum width of 20 feet for two-way ingress and egress	We are requesting to reduce the driveway width to 18' at the parking garage entrance.	The waiver is being sought to allow a standard parking garage door width at the entrance. If fewer than 10 spaces were shown on each parking level, minimum two-way driveway width requirement would be reduced to 10'.
Technical Manual 1.14 Parking Lot and Parking Space Design	Minimum widths of aisles are 24' for 90 deg parking	We are requesting to reduce the drive aisle to a minimum 21.86' within the site.	The waiver is being sought to maximize use of available parking space within the site. The circulation has been verified to be functional. A 24' drive aisle reduces the

G. Financial Capacity

A letter from the Applicant's bank confirming financial capacity is attached to this section.





March 17, 2020

City of Portland
ATTN: Planning Board
389 Congress Street
Portland, ME 04101

RE: Avesta Valley Street, LP

To Whom It May Concern:

Avesta Valley Street, LP is a valued customer of Gorham Savings Bank. Please be advised they have cash and financing resources available to complete the construction project located at 200 Valley Street, Portland, Maine.

I look forward to working with Avesta Valley Street, LP on this project. Please feel free to contact me with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "MWE", is positioned above the printed name.

Matthew W. Early
Senior Vice President

MWE/ckb

H. Technical Capacity

Acorn Engineering, Inc. and Ryan Senatore Architecture have successfully permitted and provided civil/site engineering for over 20 Level II/III projects in Portland over the past 5 years. Some examples include:

- Eldredge Lumber
- 127 York Street – Harborside Townhomes
- Munjoy Heights
- 70 Anderson St.
- 89 Anderson St. – East Bayside Lofts
- 667 Congress St – The Hiawatha



I. Conformity with Land Use Ordinance

The following outline is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use, Article V Section 14-526 as well as the City of Portland Technical Manual, Chapter 14 Standards for Local Site Location of Development Review.

OVERVIEW

The proposed 5-story building, 60-unit building been designed to conform to City standards where possible. This project conforms with the majority of the applicable standards of Portland's Land Use Ordinance Section 14-526 as demonstrated in the following narrative.

(a) Transportation Standards

1. Impact on Surrounding Street Systems:

The site is located on Valley St, at the corner of C St and Valley Street. Valley St, classified as Minor Arterial, currently supports a low amount of traffic. There is a slight anticipated increase in traffic anticipated; however, the nature of the increase is low turnover and not expected to create any traffic issues.

2. Access and Circulation:

a. Site Access and Circulation:

- (i) The development will provide safe access and internal circulation for both pedestrians and vehicles as seen on the Site Plan.
- (ii) The proposed driveway will be no closer to the Valley/C St intersection than the existing driveway of the site. Both driveways have been situated as far away from the intersection as possible. Furthermore, the intersection is almost entirely through traffic on Valley a C Street is a very small one-way local road.

(iii) Not applicable.

b. Loading and Servicing:

- (i) There are no anticipated loading and servicing needs.

c. Sidewalks:

- (i) A brick sidewalk exists along Valley St and C St.
- (ii) The existing brick sidewalks will be rebuilt in accordance with City of Portland standards. Because of the moratorium, the Applicant anticipated maintaining the majority of the existing curbing along Valley Street,



- (iii) The main entrance to the building will be off the Valley Street sidewalk with a continuation of the brick walk. Please refer to the Site Plan, Sheet C-10, for more information.

3. Public Transit Access:

- a. Two METRO bus pullouts exist within 650' of the site.
- b. Not applicable.
- c. Not applicable.
- d. Not applicable.

4. Parking:

a. Location and Required Number of Vehicle Parking Spaces:

- (i) The proposed project will provide 39 parking spaces on site. Please see Document S for more information.
- (ii) See Document S for information on proposed parking and multi-modal transportation strategies.
- (iii) The proposed project does not exceed minimum parking requirements.
- (iv) Parking spaces meet the dimensional standards detailed in section 1 of the Technical Manual.
- (v) The parking areas will be constructed with durable surfaces which will drain water without eroding.

b. Location and Required Number of Bicycle Parking Spaces:

- (i) The site plan includes an interior storage room for bicycles which would provide a secure location for the bicycles as well 3 exterior bicycle racks.
- (ii) Not applicable.

c. Motorcycles and Scooter Parking:

- (i) There are no areas designated for motorcycles or scooters at this time.

d. Snow Storage:

- (i) Not applicable as the parking lot will be enclosed in the basement level of the proposed building.
- (ii) Not applicable.



5. Transportation Demand Management (TDM):

- a. Though not required, a Transportation and Parking Analysis has been designed for the proposed project. See Document S.
- b. Not applicable.
- c. Not applicable.

(b) Environmental Quality Standards

1. Preservation of Significant Natural Features:

- a. Not applicable.
- b. Not applicable.
- c. A waiver is not requested.

2. Landscaping and Landscaping Preservation:

a. Landscape Preservation.

- (i) Two trees larger than 10" diameter exist within the C St side of the site.
- (ii) As the site is not subject to side yard setbacks, no existing trees are required to be preserved
- (iii) Not applicable.
- (iv) A waiver is not requested.
- (v) Not applicable.

b. Site Landscaping.

(i) Landscaped Buffers:

- a. All solid waste locations will be located within the proposed building and screened from view.
- b. Not applicable; the site is not subject to front or side yard setbacks along the Valley and C St frontages.
- c. Not applicable.
- d. Fence screening will be provided between the proposed development and abutting sites.



(ii) Parking Lot Landscaping:

- a. Not applicable, enclosed parking.
- b. Not applicable.
- c. Not applicable.
- d. Not applicable.
- e. Not applicable.

(iii) Street Trees:

- a. Per Section 4.6 of the Portland Maine Technical Manual, 60 Street trees are required (one per unit). Based on the property's frontage and proposed utilities, 4 street trees are proposed to be planted in addition to preserving 1 existing street trees within the sidewalk on Valley and C Streets.
- b. Four (4) proposed street trees and the preservation of the one (1) existing street tree will count toward a total of five (5). The applicant will contribute to the City's Street Tree Fund in place of the 55 street trees that will not be planted. Additionally, per Section 14.526(b).2.(b)(iii)(b)ii, the cost of the (3) proposed granite planters should be deducted from the \$22,000 contribution for 55 trees.

3. Water Quality, Stormwater Management and Erosion Control:

a. Stormwater:

- (i) The site drainage will not be directed to flow or pond onto adjacent lots.
 - (ii) Overall, there is a proposed increase in impervious area. The stormwater will be captured by a storage culvert to the west of the site and will slowly flow to the separated storm line with C Street after being attenuated by an outlet control structure.
 - (iii) The runoff from the site into the City property will be handled without creating ponding, flooding, or other drainage issues.
 - (iv) The proposed project will not increase stormwater runoff from the site as demonstrated within the stormwater report.
- b. A site-specific Stormwater Management Plan has been developed for the project to show compliance with Section 5 of the Technical Manual, including the basic standards of MEDEP Chapter 500. Please refer to sections J and K, the Stormwater Management and Erosion & Sedimentation Control Plans, respectively, for more information.
- c. The project is not located in a watershed of an urban impaired stream as listed by



the MEDEP.

- d. Not applicable.
- e. The development is not anticipated to pose a contamination risk to groundwater during or after construction. The project will be serviced by a public wastewater system.
- f. The development will provide for adequate and sanitary disposal of sewage in accordance with Section 2 of the Technical Manual.

(c) Public Infrastructure and Community Safety Standards

- 1. Consistency with City Master Plans:
 - a. The project has been designed to be consistent with the City's Zoning Ordinance and off-site infrastructure.
 - b. Not applicable.
- 2. Public Safety and Fire Prevention:
 - a. The site has been designed to promote safe and inviting public access:
 - b. Adequate emergency access has been provided. Direct access is available from Valley St and C St.
 - c. A fire hydrant is located to the south of the site on the same side of Valley Street.
- 3. Availability and Adequate Capacity of Public Utilities:
 - a. Public utilities in the vicinity of the site have capacity to serve the project. Ability to Serve letters have been sent to the respective companies. Responses have been included in the submission and any remaining responses will be submitted upon receipt.
 - b. The electrical service will be routed underground to a submersible transformer within the C Street sidewalk, subject to a license with the City.
 - c. The new sewer and stormwater infrastructure will meet the provisions of the Technical Manual.
 - d. The project will be served by connection to the public sewer system within C Street.
 - e. The sanitary sewer collection system meets all applicable sections of the Technical Manual. The stormwater management system is designed to meet the standards of Chapter 500.
 - f. The project anticipates providing internal solid waste storage with private hauling of the waste.



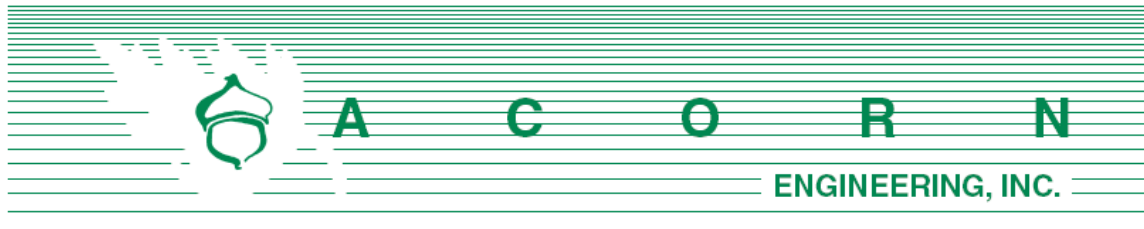
(d) Site Design Standards

1. Massing, Ventilation and Wind Impact:
 - a. Not applicable.
 - b. Not applicable.
 - c. Not applicable.
2. Shadows:
 - a. The shadows created by the building will not influence public open spaces.
3. Snow and Ice Loading:
 - a. The structures will not distribute snow and ice onto adjacent properties.
4. View Corridors:
 - a. The project site is located outside the Downtown View Corridor Protection Plan.
5. Historic Resources:
 - a. The development is not located in a historic district, historic landscape district or City designated landmark.
 - b. The development is adjacent to a historic landscape district, but not adjacent to a historic district or a historic City designated landmark.
 - c. There are no known archaeological resources on the site.
6. Exterior Lighting:
 - a. Site Lighting.
 - (i) Exterior lighting has been designed to meet the requirements of Section 12 of the Technical Manual. Please let us know if a photometric plan is required as part of this permit.
 - (ii) Any lighting that may adversely impact the abutting residential properties will feature house-side shielding.
 - b. Architectural and Specialty Lighting.
 - (i) No architectural or specialty lighting is proposed.
 - (ii) No up-lighting is proposed.



- c. Street Lighting.
 - (i) No new streetlights are proposed.
- 7. Noise and Vibration:
 - a. The HVAC system will meet the applicable state and federal emissions requirements and will also be screened and directed away from abutters.
- 8. Signage and Wayfinding:
 - a. All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.
 - (i) The project is not located in a historic district or subject to Article IX.
 - (ii) Not applicable.
 - (iii) All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.
- 9. Zoning Related Design Standards:
 - a. The project has been designed to meet the standards set forth in the B-2 zone with the bonuses for affordability. . Please refer to the Site Plan for more information on the Space & Bulk Standards.





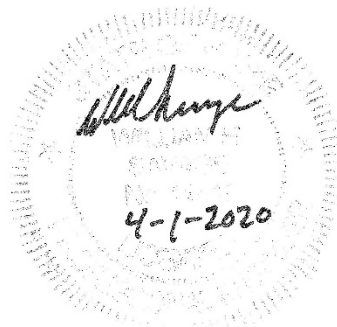
J. STORMWATER MANAGEMENT **REPORT**

Prepared For:

**Avesta Valley Street, LP
307 Cumberland St.
Portland, Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
65 Hanover Street
Portland, Maine 04101**



April 2020

INTRODUCTION

Acorn Engineering, Inc. has been retained by Avesta Valley Street, LP for the proposed redevelopment of 210 Valley St. The project proposes a 5-story, 60-unit building with two levels of covered parking. To facilitate the project, the existing two-story building will be demolished. The project will increase the site's impervious area by greater than 1,000 square feet, the majority of which would be roof runoff, and as such is subject to water quality and quantity standards.

A stormwater analysis will be prepared to demonstrate that the project will meet the following requirements of the City of Portland (the City):

- City of Portland Land Use Ordinance Chapter 14, Article V. Site Plan Section 14-523. Required Approvals and Applicability (F) Level III Site Plan Review.
- City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management.

EXISTING CONDITIONS

The proposed project is located at the intersection of Valley and C Streets. The proposed lot is a combination of multiple properties which presently include Portland Tax Map 64-F-7,8,9 and 15 comprising 14,964 square feet. Portland has zoned this area as a B-2 Business Zone. An existing conditions plan has been prepared by Owen Haskell, Inc. dated July 2019. Abutting uses are residential, retail and office space, and recreational open space.

Approximately 40% of the existing site is comprised of impervious area, including the existing building, the gravel driveways, a concrete walkway, retaining walls, and areas of riprap. The grassed areas are in fair condition with some patches of exposed soils. From east to west the grades drop off at approximately 16%. The project area presently drains the majority of its runoff to the abutting properties to the west (121-129 St. John Street). The eventual outfall of the St. John Street MS4 is between the Veteran's Memorial Bridge and Sprague Terminal, just upgradient of the Fore River shore.

The project team is not aware of the presence of any existing significant natural features located on the site. Given the urban setting, existing free-draining soils and steep slopes a field inventory of significant natural feature was not undertaken. The project is not located within a watershed classified as an Urban Impaired Stream.

PROPOSED DEVELOPMENT

The redevelopment proposes a 5-story, 60-unit apartment building with two levels of covered parking. The building will be set into the slope, taking advantage of the grade change to provide two levels of covered parking with driveway access from both Valley and C Streets.

A stone swale/detention system with two rows of subsurface storage tanks and a Nyoplast outlet control structure located to the west of the site will collect and detain stormwater runoff from the roof (after being routed through filter cartridges) and surrounding areas of the site before discharging to the Municipal Separated Storm Sewer System (MS4) within C



Street instead of shedding runoff to the abutting properties as the current site does. Any runoff from vehicles parked within the covered parking areas will be caught by an internal oil-water separator and directed to the sewer system within C Street.

The development will be served by the Portland Water District, underground power/cable/communications, natural gas and the municipal sewer system. Solid waste and recycling will be contracted through a private waste disposal and recycling provider. The project anticipates incorporating Maine DEP approved stormwater Best Management Practices (BMP) to meet the General and Flooding Standards.

GENERAL STANDARDS - WATER QUALITY

The development shall provide water quality treatment for no less than 95% of the new impervious area and 80% of the developed area. The project includes the redevelopment of existing impervious area including rooftops, asphalt driveways, and walkways. Water quality treatment shall be provided through the use filter cartridges that will collect and treat roof runoff.

The treatment of the impervious surfaces is as follows:

Table 1 – Impervious Treatment Area Table				
Existing Impervious Area (SF)	Total Proposed Impervious Area (SF)	New Impervious Area (SF)	Proposed Impervious Area with Treatment (SF)	Overall New Imp. Area Treated
6,053	14,326	8,273	14,250	172%

As shown above, the project anticipates meeting and exceeding the required treatment for new impervious surfaces and developed area.

The entire roof is proposed to be treated by two subsurface systems with four total filter cartridges which will treat up to a 2-year storm before bypassing the flows, which is in exceedance of the typical water quality volume of 1". Each cartridge is rated for 0.25 cfs with a bypass flow of 1.5 cfs. The peak inflow from a 2-year storm is 1.01 cfs, meaning that as long as the roof runoff is distributed equally between two downspouts, the 2-year storm will be treated before discharging to the detention system. Because of the bypass system, the filters will not act as an inflow constrictor to the detention system.

The proposed downspout basin filter cartridges are manufactured by ACF, or an approved equivalent, and have been designed specifically for the target pollutants found on rooftops such as heavy metals and bird waste. Maintenance steps have been included within the application material which will be part of the future maintenance agreement.

FLOODING STANDARD – WATER QUANTITY

The proposed project was modeled using HydroCAD to verify that the post-development conditions do not exceed the pre-development conditions. A 24-hour SCS Type III storm



distribution for the 2, 10, and 25-year storm events were used. The corresponding rainfall amounts for these storms are 3.10", 4.60", and 5.80" respectively.

Due to the numerous variables, and inherent inaccuracies with the modeling program used to calculate stormwater runoff it is custom at Acorn Engineering, Inc. to round to the nearest whole number.

Time of Concentration (T_c)

In all pre and post subcatchments, calculating a T_c using site specific flow paths yielded less than 6 minutes. A consistent T_c of 6 minutes (0.1 hour) was applied for both the pre- and post-development conditions, consistent with TR-55 practices.

Pre-development Calculations

The entirety of the existing site was modeled as a single subcatchment given the existing topography. The site's runoff flows to the abutting properties on St John Street which ultimately drains to the public drainage system within St John Street.

A pre-development watershed map developed for this project can be viewed in Attachment A and a copy of the HydroCAD calculations is included within Attachment C, of this report.

Peak flow rates for the storm events are as follows:

Table 2 – Pre-Development Peak Stormwater Flows			
Drainage Area	2 – Year Storm Event (cfs)	10 – Year Storm Event (cfs)	25 – Year Storm Event (cfs)
Total Runoff	0	0	1

Post-development Calculations:

The post-development model was broken into three separate subcatchments.

- Subcatchment 1 – This tributary includes the entirety of the roof, exterior walkways and side yards, retaining wall, and crushed stone swale, which all ultimately run to the detention system and then to the C St storm system.
- Subcatchment 2 – This tributary includes the Valley Street driveway and the small portion of the concrete walkway which drain south along Valley St. Because of the catchment is less than 100 square feet, the Valley Street point of interest was not analyzed in the tables given the negligible peak flow.

A post-development Watershed Map developed for this project can be viewed in Attachment B and a copy of the HydroCAD calculations is included within Attachment C, of this report.

The post-development calculations include the compensation provided by the stormwater detention system and outlet control structure which will slowly release the stormwater runoff into the MS4 at a controlled rate. The following table represents comparison of pre-



development and post-development condition peak runoff rates for the proposed development and tributary area.

Table 3 – Comparison of Peak Flows						
Drainage Area	2 – Year Storm Event (cfs)		10 – Year Storm Event (cfs)		25 – Year Storm Event (cfs)	
Total Runoff	Pre	Post	Pre	Post	Pre	Post
	0	0	0	0	1	1

As shown in Table 4 the net impact of the post development peak flows will not exceed the predevelopment levels.

Down Gradient Property Owners:

The post development (proposed) peak stormwater surface flows tributary to the down gradient property owners will significantly decrease. The proposed crushed stone swale and storage system have been sized to detain and release the runoff from the entire roof. Currently, nearly all stormwater runoff generated by the site drains to the abutting properties. In the proposed condition, the flows will be redirected to the MS4 system in C Street at the existing peak rate, therefore improving upon the existing conditions to the downgradient property owner.

SOILS

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County

Given the soils information, listed above, no onsite wastewater is proposed, deep fills/cuts the applicant does not intend to perform a more intense hydric soil boundary delineation because of the waiver requirements set forth in the City of Portland Technical Manual – Section 7 – Soil Survey, Rev. 6/17/12 are met.

The area within and surrounding the project includes soils types listed in the table below. The susceptibility of soils to erosion is indicated on a relative “K” scale of values over a range of 0.02 to 0.69. Higher “K” values indicate more erodible soils.

Table 4 - “K” Value		
Soils Type	Subsurface	Substratum
Hinckley	.17	.17

The soil “K” values for the soils, listed above, show a low susceptibility to erosion. The site’s susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. Although soil “K” values for the soils show a low susceptibility to erosion, implementation of the proposed Erosion & Sedimentation Measures by the contractor will be of the utmost importance, given the long-sustained slopes.



CONCLUSION

The proposed development was designed to meet the requirements implemented by the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards. As a result of the design of the proposed development and stormwater system, the project does not anticipate creating erosion, drainage or runoff problems either in the development or with respect to adjoining properties. The existing peak flows will be maintained, but flows will be redirected to the stormwater system through attenuation practices and infrastructure rather than letting runoff flow to the abutting private properties.

ATTACHMENTS

Attachment A: Pre Development Watershed Map
Attachment B: Post Development Watershed Map
Attachment C: HydroCAD Calculations
Attachment D: Soil Survey



REFER TO STORMWATER REPORT FOR MORE INFORMATION.

SUBCATCHMENT

SUBCATCHMENT EXTENTS

POINT OF INTEREST (POI)

POND

POI 1

TM 64-F-2&3
N/F
CASTE OFF LLC
34754/63

TM 64-F-20
N/F
ARRESTA
FLORENCE HOUSE L
26565/

VALLEY STREET (UNDER MORATORIUM UNTIL SEPT. 2023)

NOT ISSUED FOR
CONSTRUCTION

[illegible]

PRE CONSTRUCTION STORMWATER PLAN

210 VALLEY SIREEI REDEVELOPMENT

307 CUMBERLAND AVE, PORTLAND, ME 04101

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC.
165 HANOVER ST., PORTLAND, MAINE 04101
(207) 775-2655

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1127

SCALE:	AS NOTED
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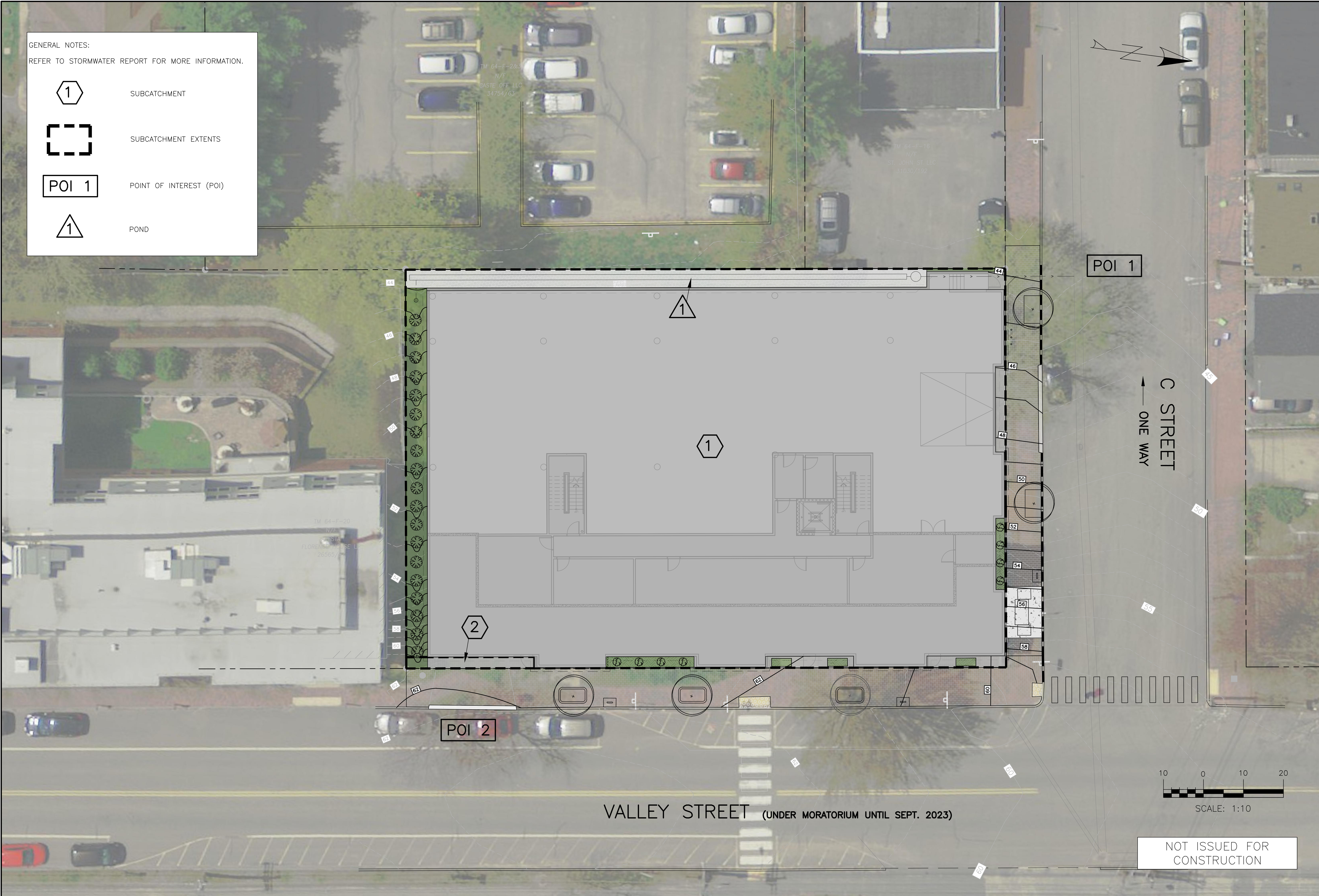
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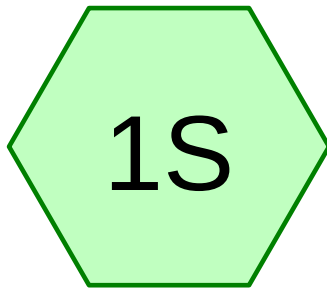
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CHECKED BY: WHS

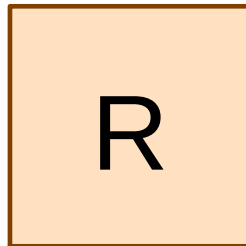
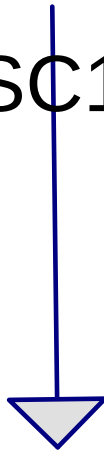
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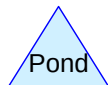
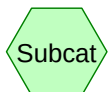
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SC1



POI #1 - St John St.



Routing Diagram for Pre Development 3-22-20

Prepared by {enter your company name here}, Printed 4/10/2020
HydroCAD® 10.00-25 s/n 00620 © 2019 HydroCAD Software Solutions LLC

Pre Development 3-22-20

Prepared by {enter your company name here}

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Printed 4/10/2020

Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.205	39	>75% Grass cover, Good, HSG A (1S)
0.096	96	Gravel surface, HSG A (1S)
0.017	98	Unconnected pavement, HSG A (1S)
0.027	98	Unconnected roofs, HSG A (1S)
0.344	62	TOTAL AREA

Pre Development 3-22-20

Prepared by {enter your company name here}

Printed 4/10/2020

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.344	HSG A	1S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.344		TOTAL AREA

Pre Development 3-22-20

Prepared by {enter your company name here}

Printed 4/10/2020

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Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.205	0.000	0.000	0.000	0.000	0.205	>75% Grass cover, Good	1S
0.096	0.000	0.000	0.000	0.000	0.096	Gravel surface	1S
0.017	0.000	0.000	0.000	0.000	0.017	Unconnected pavement	1S
0.027	0.000	0.000	0.000	0.000	0.027	Unconnected roofs	1S
0.344	0.000	0.000	0.000	0.000	0.344	TOTAL AREA	

Pre Development 3-22-20*Type III 24-hr 2-year Rainfall=3.10"*

Prepared by {enter your company name here}

Printed 4/10/2020

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Page 5

Time span=1.00-36.00 hrs, dt=0.01 hrs, 3501 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: SC1

Runoff Area=14,965 sf 12.63% Impervious Runoff Depth=0.37"

Tc=6.0 min UI Adjusted CN=60 Runoff=0.08 cfs 0.011 af

Reach R: POI #1 - St John St.

Inflow=0.08 cfs 0.011 af

Outflow=0.08 cfs 0.011 af

Total Runoff Area = 0.344 ac Runoff Volume = 0.011 af Average Runoff Depth = 0.37"
87.37% Pervious = 0.300 ac 12.63% Impervious = 0.043 ac

Summary for Subcatchment 1S: SC1

Runoff = 0.08 cfs @ 12.13 hrs, Volume= 0.011 af, Depth= 0.37"

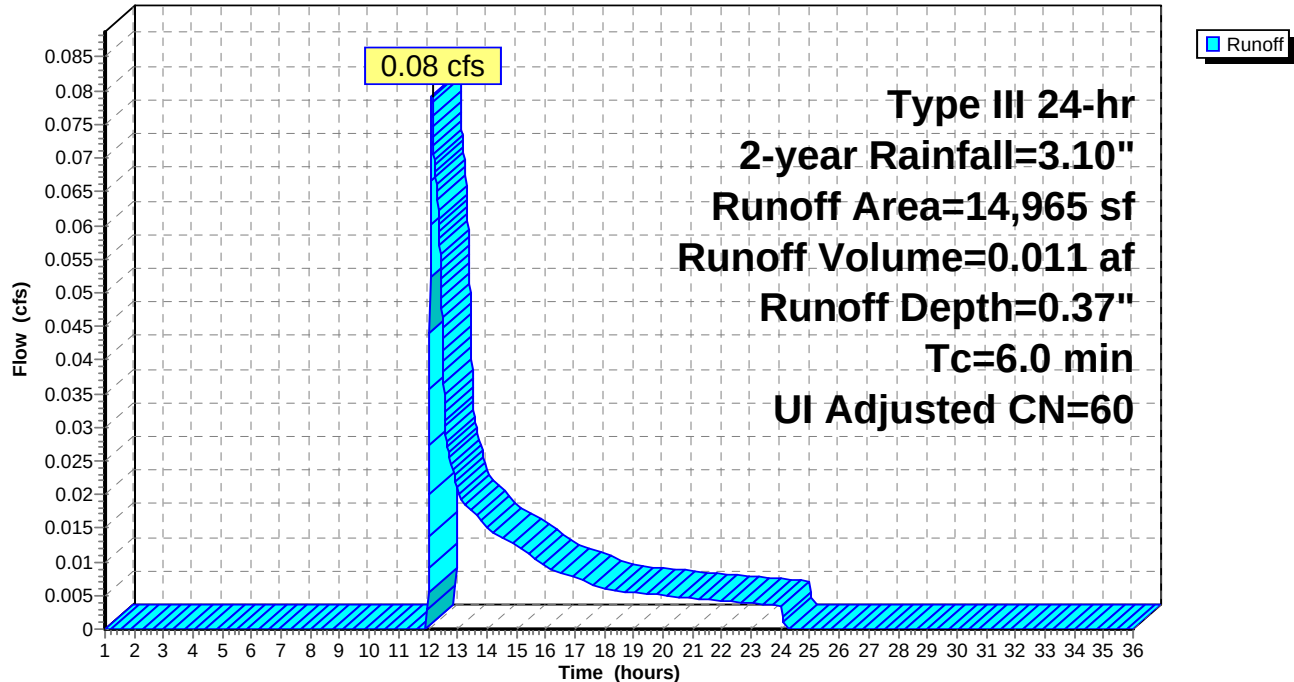
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.10"

Area (sf)	CN	Adj	Description
1,164	98		Unconnected roofs, HSG A
726	98		Unconnected pavement, HSG A
4,163	96		Gravel surface, HSG A
8,912	39		>75% Grass cover, Good, HSG A
14,965	62	60	Weighted Average, UI Adjusted
13,075			87.37% Pervious Area
1,890			12.63% Impervious Area
1,890			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: SC1

Hydrograph

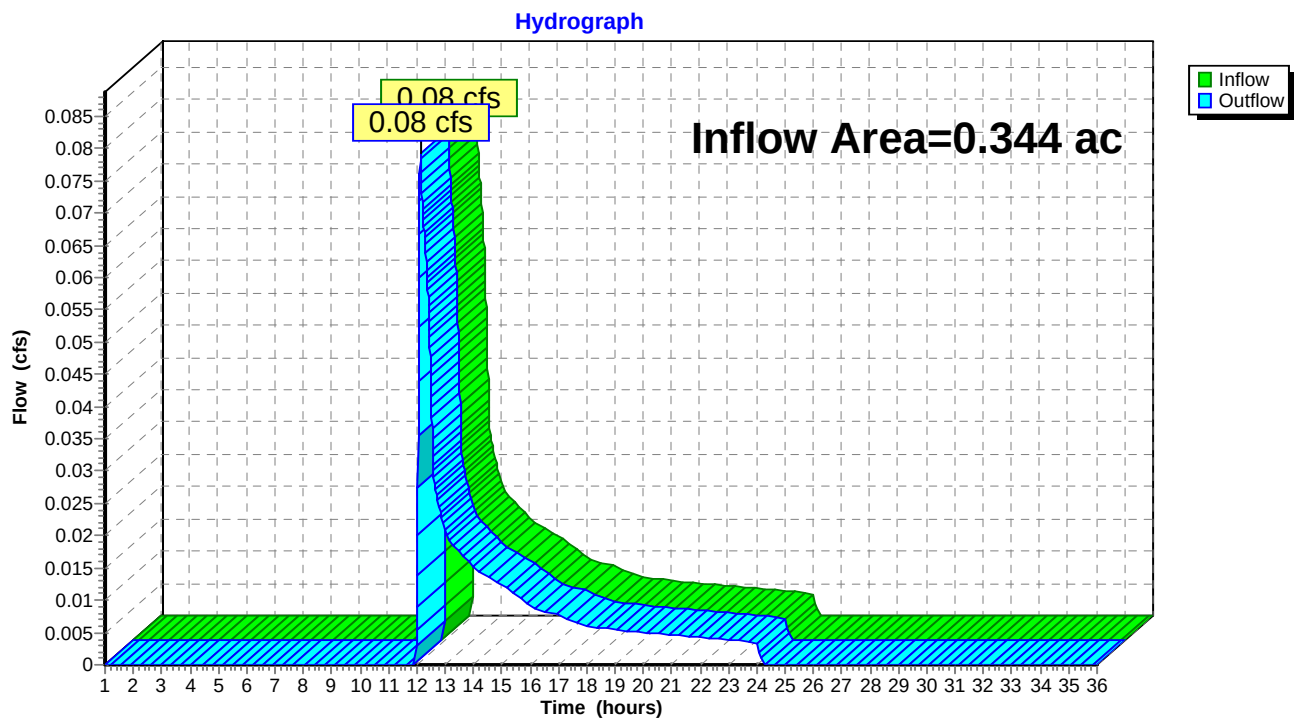


Summary for Reach R: POI #1 - St John St.

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.344 ac, 12.63% Impervious, Inflow Depth = 0.37" for 2-year event
Inflow = 0.08 cfs @ 12.13 hrs, Volume= 0.011 af
Outflow = 0.08 cfs @ 12.13 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs

Reach R: POI #1 - St John St.

Pre Development 3-22-20*Type III 24-hr 10-year Rainfall=4.60"*

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Time span=1.00-36.00 hrs, dt=0.01 hrs, 3501 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: SC1

Runoff Area=14,965 sf 12.63% Impervious Runoff Depth=1.07"

Tc=6.0 min UI Adjusted CN=60 Runoff=0.37 cfs 0.031 af

Reach R: POI #1 - St John St.

Inflow=0.37 cfs 0.031 af

Outflow=0.37 cfs 0.031 af

Total Runoff Area = 0.344 ac Runoff Volume = 0.031 af Average Runoff Depth = 1.07"
87.37% Pervious = 0.300 ac 12.63% Impervious = 0.043 ac

Summary for Subcatchment 1S: SC1

Runoff = 0.37 cfs @ 12.10 hrs, Volume= 0.031 af, Depth= 1.07"

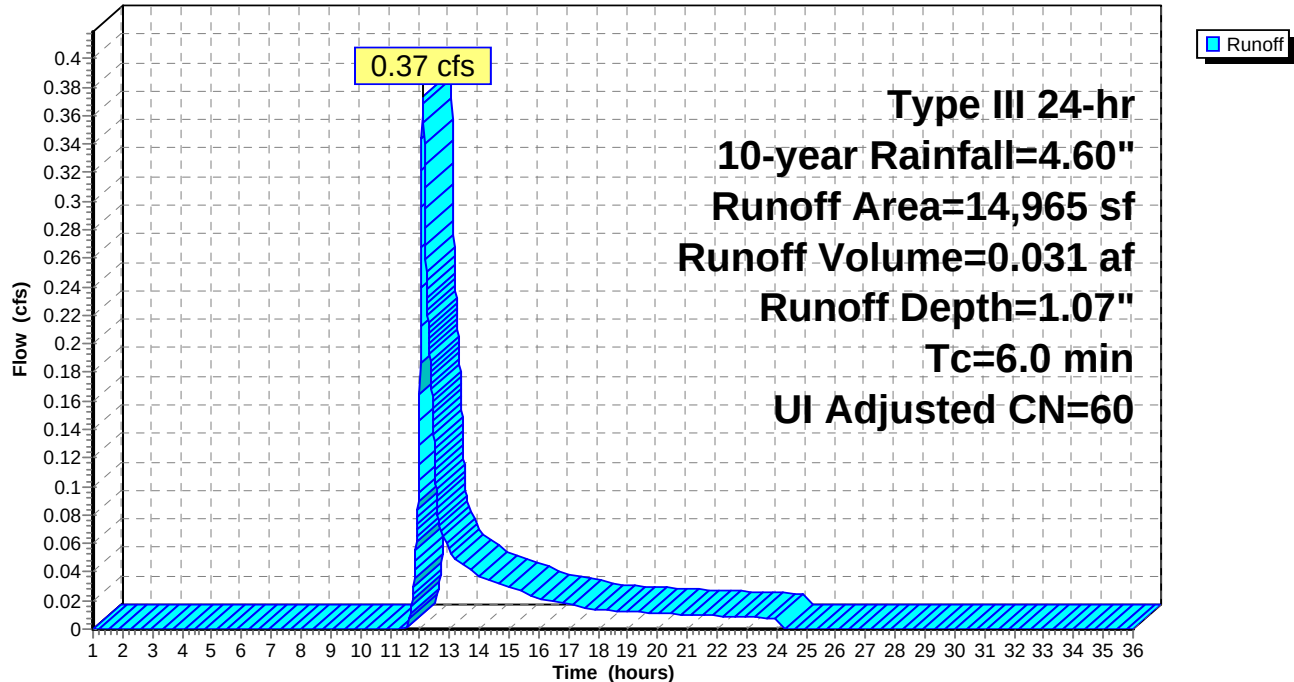
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.60"

Area (sf)	CN	Adj	Description
1,164	98		Unconnected roofs, HSG A
726	98		Unconnected pavement, HSG A
4,163	96		Gravel surface, HSG A
8,912	39		>75% Grass cover, Good, HSG A
14,965	62	60	Weighted Average, UI Adjusted
13,075			87.37% Pervious Area
1,890			12.63% Impervious Area
1,890			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: SC1

Hydrograph

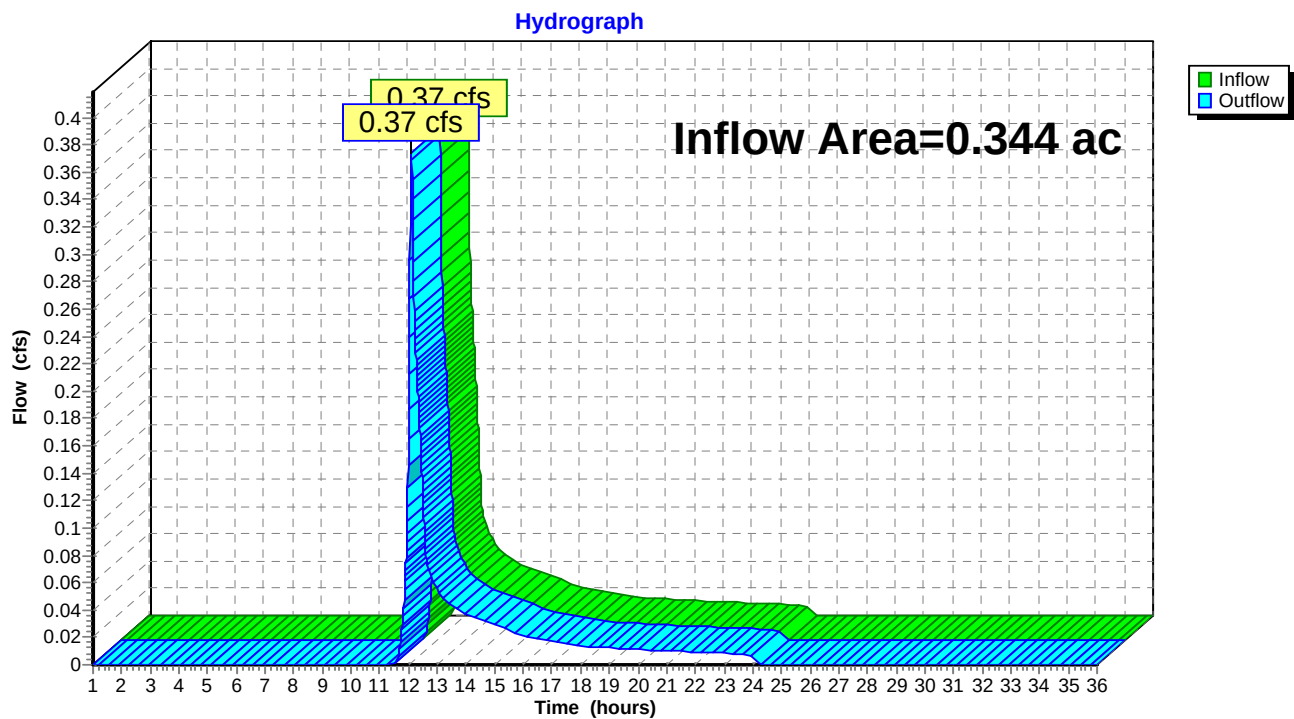


Summary for Reach R: POI #1 - St John St.

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.344 ac, 12.63% Impervious, Inflow Depth = 1.07" for 10-year event
Inflow = 0.37 cfs @ 12.10 hrs, Volume= 0.031 af
Outflow = 0.37 cfs @ 12.10 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs

Reach R: POI #1 - St John St.

Pre Development 3-22-20*Type III 24-hr 25-year Rainfall=5.80"*

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Time span=1.00-36.00 hrs, dt=0.01 hrs, 3501 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: SC1

Runoff Area=14,965 sf 12.63% Impervious Runoff Depth=1.79"

Tc=6.0 min UI Adjusted CN=60 Runoff=0.68 cfs 0.051 af

Reach R: POI #1 - St John St.

Inflow=0.68 cfs 0.051 af

Outflow=0.68 cfs 0.051 af

Total Runoff Area = 0.344 ac Runoff Volume = 0.051 af Average Runoff Depth = 1.79"
87.37% Pervious = 0.300 ac 12.63% Impervious = 0.043 ac

Summary for Subcatchment 1S: SC1

Runoff = 0.68 cfs @ 12.10 hrs, Volume= 0.051 af, Depth= 1.79"

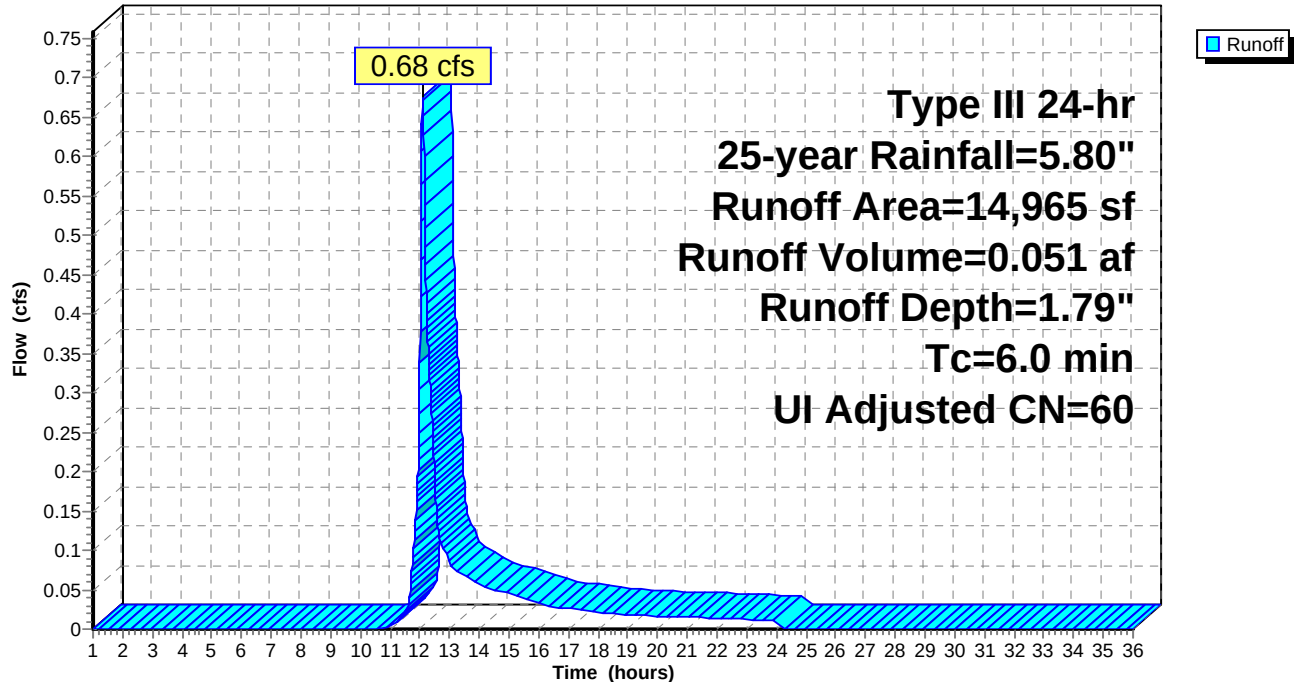
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Adj	Description
1,164	98		Unconnected roofs, HSG A
726	98		Unconnected pavement, HSG A
4,163	96		Gravel surface, HSG A
8,912	39		>75% Grass cover, Good, HSG A
14,965	62	60	Weighted Average, UI Adjusted
13,075			87.37% Pervious Area
1,890			12.63% Impervious Area
1,890			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: SC1

Hydrograph

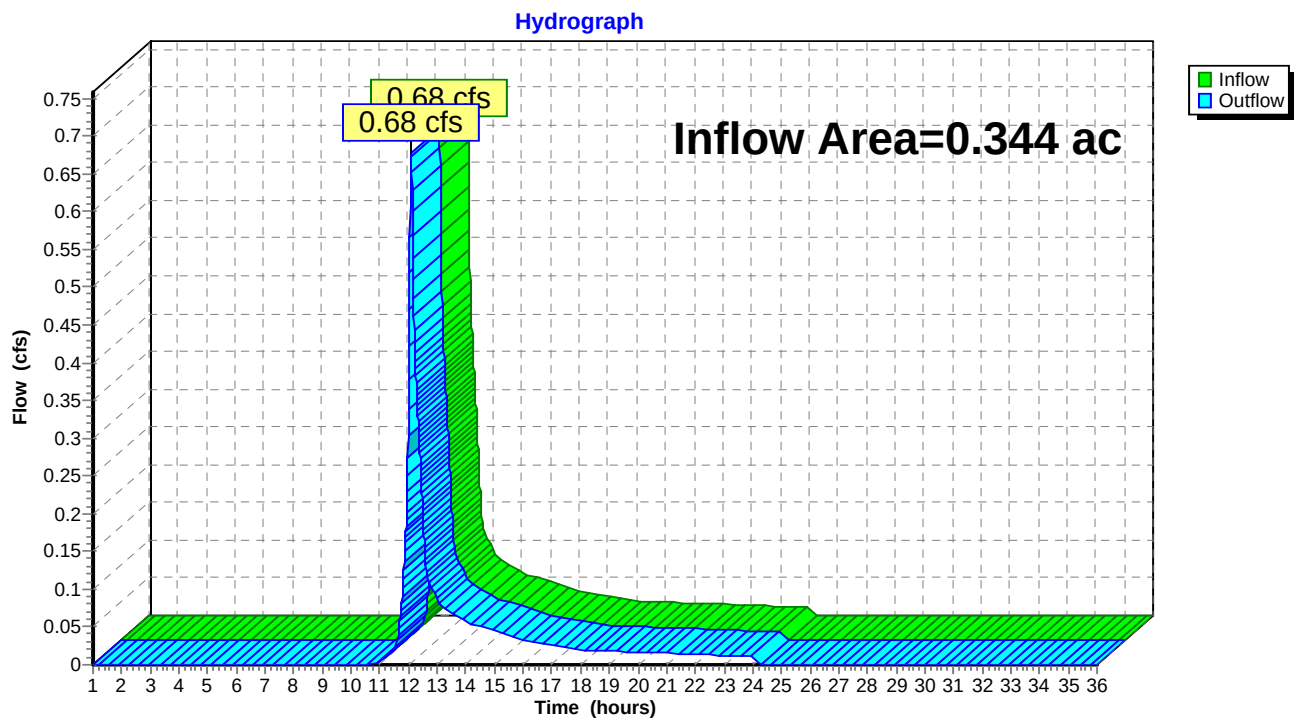


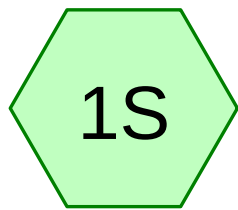
Summary for Reach R: POI #1 - St John St.

[40] Hint: Not Described (Outflow=Inflow)

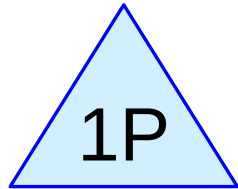
Inflow Area = 0.344 ac, 12.63% Impervious, Inflow Depth = 1.79" for 25-year event
Inflow = 0.68 cfs @ 12.10 hrs, Volume= 0.051 af
Outflow = 0.68 cfs @ 12.10 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs

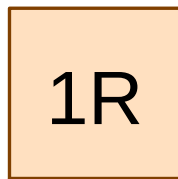
Reach R: POI #1 - St John St.



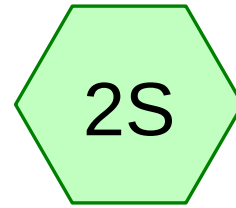
SC1



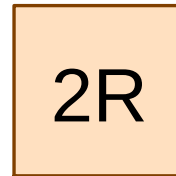
Tanks/Stone/OCS



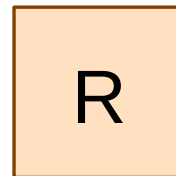
POI #1 - St John St.



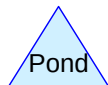
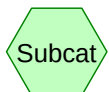
SC2



POI #2 - Valley St.



Total



Routing Diagram for Post Development April 2020

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.015	39	>75% Grass cover, Good, HSG A (1S, 2S)
0.014	96	Crushed Stone Swale (1S)
0.305	98	Roofs, HSG A (1S)
0.010	98	Unconnected pavement, HSG A (1S, 2S)
0.344	95	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.330	HSG A	1S, 2S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.014	Other	1S
0.344		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.015	0.000	0.000	0.000	0.000	0.015	>75% Grass cover, Good	1S, 2S
0.000	0.000	0.000	0.000	0.014	0.014	Crushed Stone Swale	1S
0.305	0.000	0.000	0.000	0.000	0.305	Roofs	1S
0.010	0.000	0.000	0.000	0.000	0.010	Unconnected pavement	1S, 2S
0.330	0.000	0.000	0.000	0.014	0.344	TOTAL AREA	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	38.85	36.15	33.0	0.0818	0.011	8.0	0.0	0.0

Post Development April 2020*Type III 24-hr 2-year Rainfall=3.10"*

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Time span=1.00-36.00 hrs, dt=0.01 hrs, 3501 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: SC1

Runoff Area=14,874 sf 91.70% Impervious Runoff Depth=2.55"

Tc=6.0 min CN=95 Runoff=0.97 cfs 0.072 af

Subcatchment2S: SC2

Runoff Area=91 sf 83.52% Impervious Runoff Depth=1.91"

Tc=6.0 min CN=88 Runoff=0.00 cfs 0.000 af

Reach 1R: POI #1 - St John St.

Inflow=0.34 cfs 0.072 af

Outflow=0.34 cfs 0.072 af

Reach 2R: POI #2 - Valley St.

Inflow=0.00 cfs 0.000 af

Outflow=0.00 cfs 0.000 af

Reach R: Total

Inflow=0.34 cfs 0.073 af

Outflow=0.34 cfs 0.073 af

Pond 1P: Tanks/Stone/OCS

Peak Elev=41.14' Storage=683 cf Inflow=0.97 cfs 0.072 af

Outflow=0.34 cfs 0.072 af

Total Runoff Area = 0.344 ac Runoff Volume = 0.073 af Average Runoff Depth = 2.54"
8.35% Pervious = 0.029 ac 91.65% Impervious = 0.315 ac

Summary for Subcatchment 1S: SC1

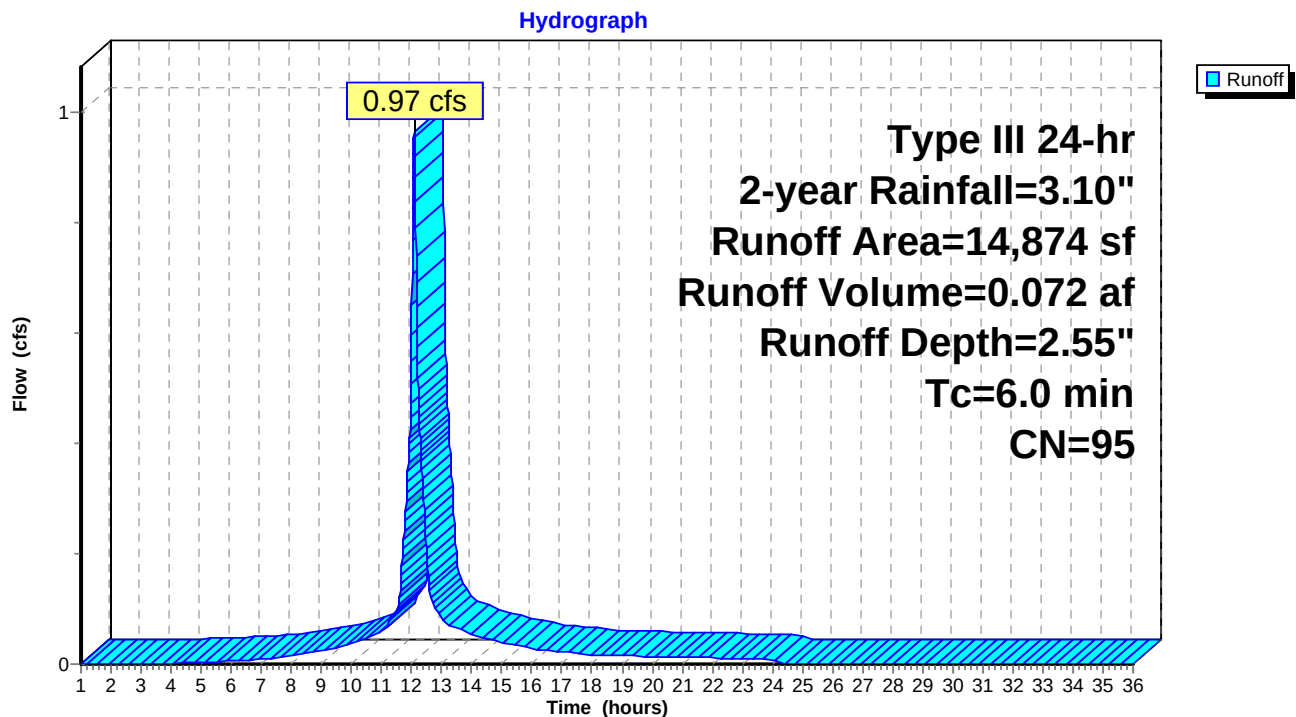
Runoff = 0.97 cfs @ 12.08 hrs, Volume= 0.072 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.10"

Area (sf)	CN	Description
13,292	98	Roofs, HSG A
348	98	Unconnected pavement, HSG A
624	39	>75% Grass cover, Good, HSG A
* 610	96	Crushed Stone Swale
14,874	95	Weighted Average
1,234		8.30% Pervious Area
13,640		91.70% Impervious Area
348		2.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Direct Entry

Subcatchment 1S: SC1



Summary for Subcatchment 2S: SC2

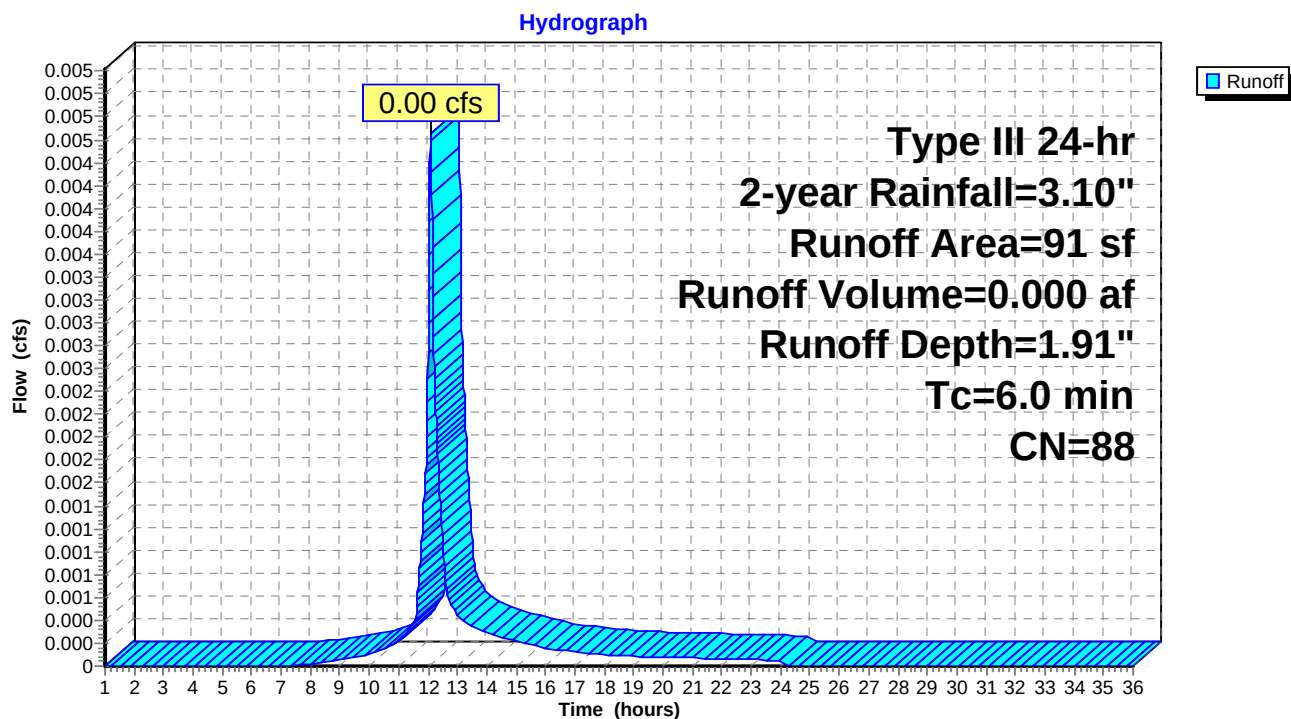
Runoff = 0.00 cfs @ 12.09 hrs, Volume= 0.000 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.10"

Area (sf)	CN	Description
0	98	Roofs, HSG A
76	98	Unconnected pavement, HSG A
15	39	>75% Grass cover, Good, HSG A
*	0	Crushed Stone Swale
91	88	Weighted Average
15		16.48% Pervious Area
76		83.52% Impervious Area
76		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Direct Entry

Subcatchment 2S: SC2



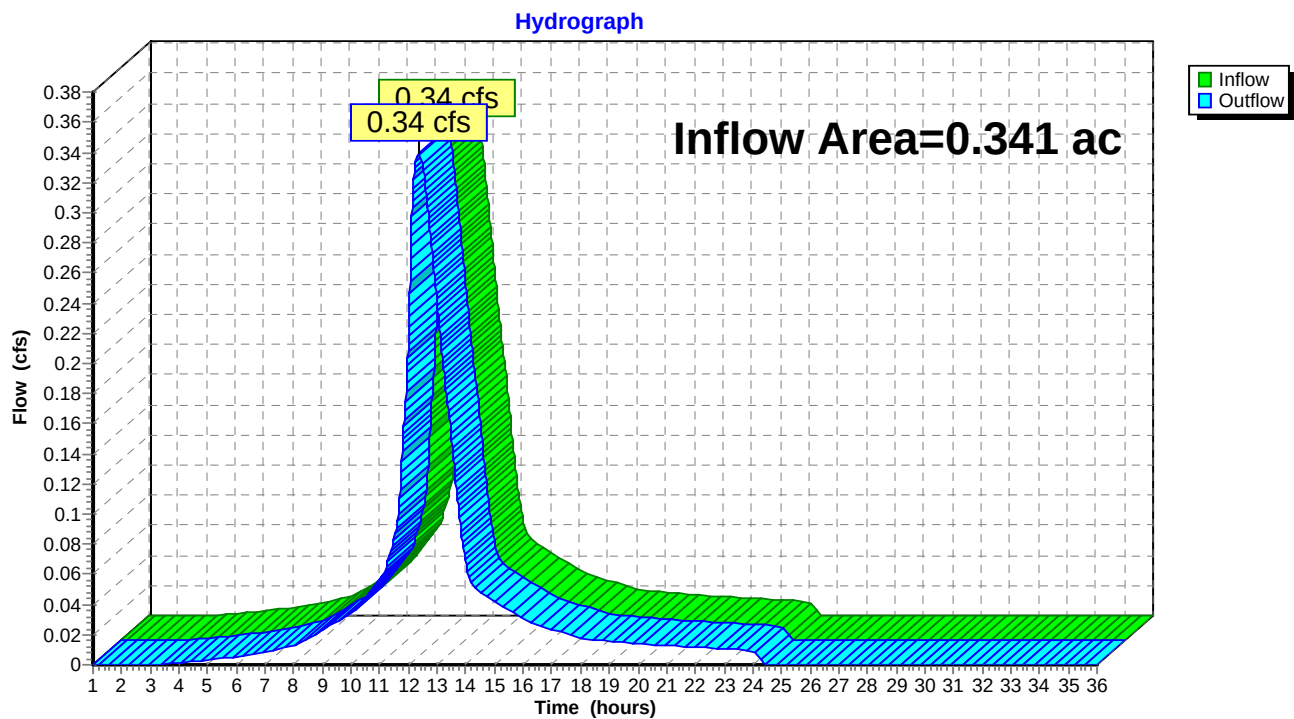
Summary for Reach 1R: POI #1 - St John St.

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.341 ac, 91.70% Impervious, Inflow Depth = 2.55" for 2-year event
 Inflow = 0.34 cfs @ 12.35 hrs, Volume= 0.072 af
 Outflow = 0.34 cfs @ 12.35 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: POI #1 - St John St.



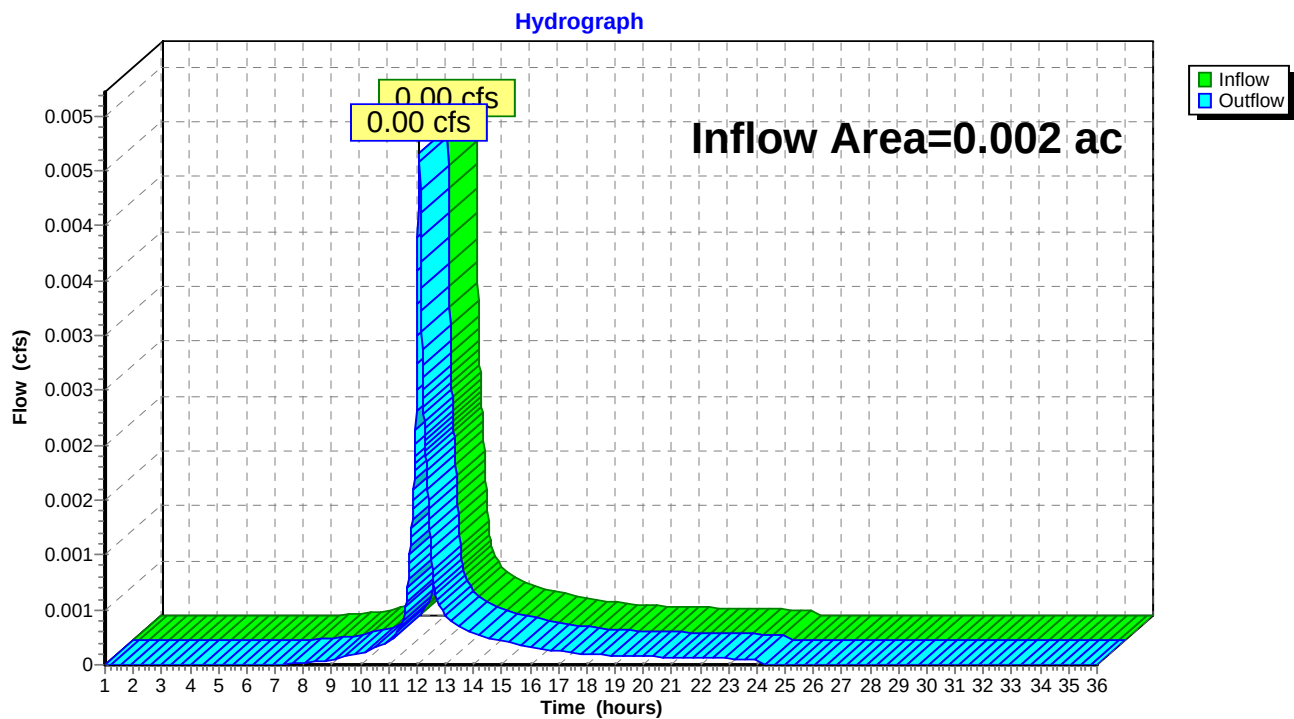
Summary for Reach 2R: POI #2 - Valley St.

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.002 ac, 83.52% Impervious, Inflow Depth = 1.91" for 2-year event
 Inflow = 0.00 cfs @ 12.09 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 12.09 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: POI #2 - Valley St.



Summary for Reach R: Total

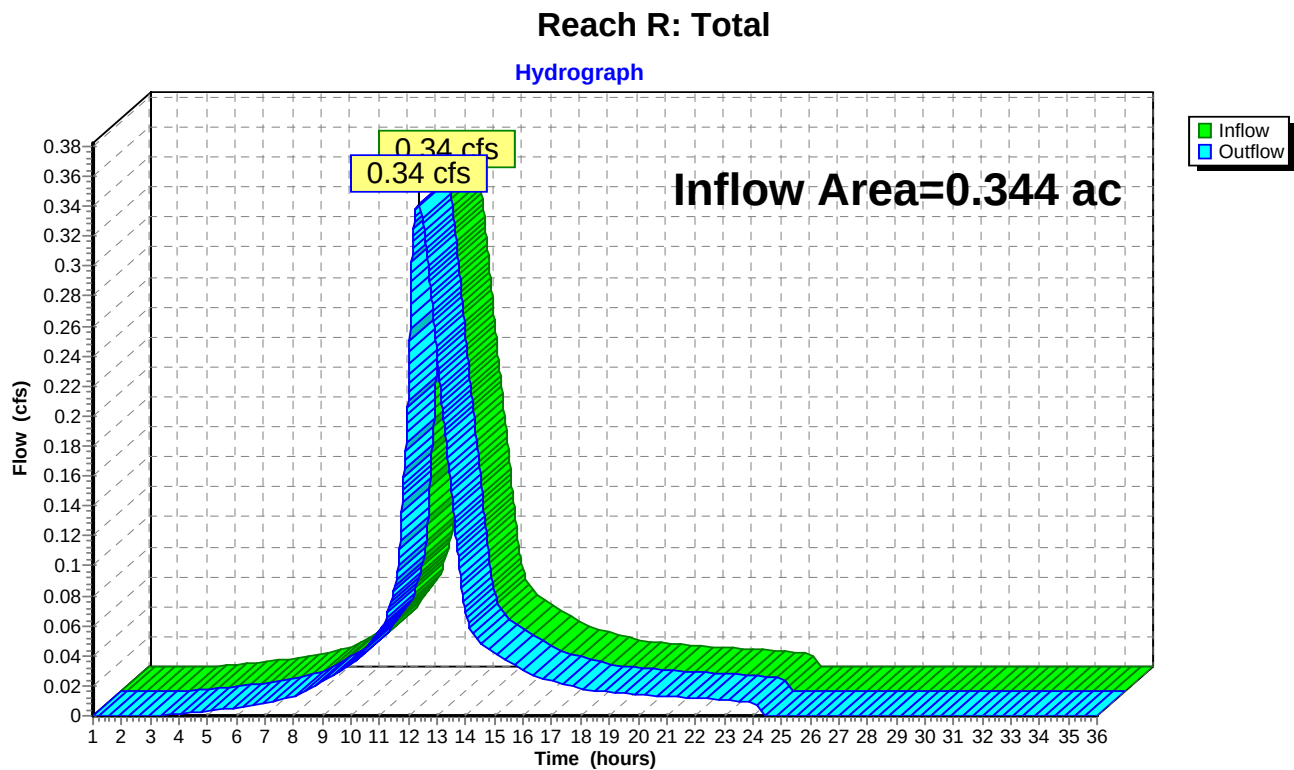
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.344 ac, 91.65% Impervious, Inflow Depth = 2.54" for 2-year event

Inflow = 0.34 cfs @ 12.34 hrs, Volume= 0.073 af

Outflow = 0.34 cfs @ 12.34 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs



Summary for Pond 1P: Tanks/Stone/OCS

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.341 ac, 91.70% Impervious, Inflow Depth = 2.55" for 2-year event
 Inflow = 0.97 cfs @ 12.08 hrs, Volume= 0.072 af
 Outflow = 0.34 cfs @ 12.35 hrs, Volume= 0.072 af, Atten= 65%, Lag= 15.9 min
 Primary = 0.34 cfs @ 12.35 hrs, Volume= 0.072 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 41.14' @ 12.35 hrs Surf.Area= 620 sf Storage= 683 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 18.1 min (800.0 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	1,045 cf	Cr Stone (Prismatic) Listed below (Recalc) 3,100 cf Overall - 488 cf Embedded = 2,612 cf x 40.0% Voids
#2	39.50'	424 cf	ACF R-Tank LD 2 x 53 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 460 cf Overall x 97.0% Voids
#3	39.25'	25 cf	6.0" Round Pipe Storage Inside #1 L= 125.0' S= 0.0020 '/ 28 cf Overall - 0.2" Wall Thickness = 25 cf
		1,493 cf	Total Available Storage

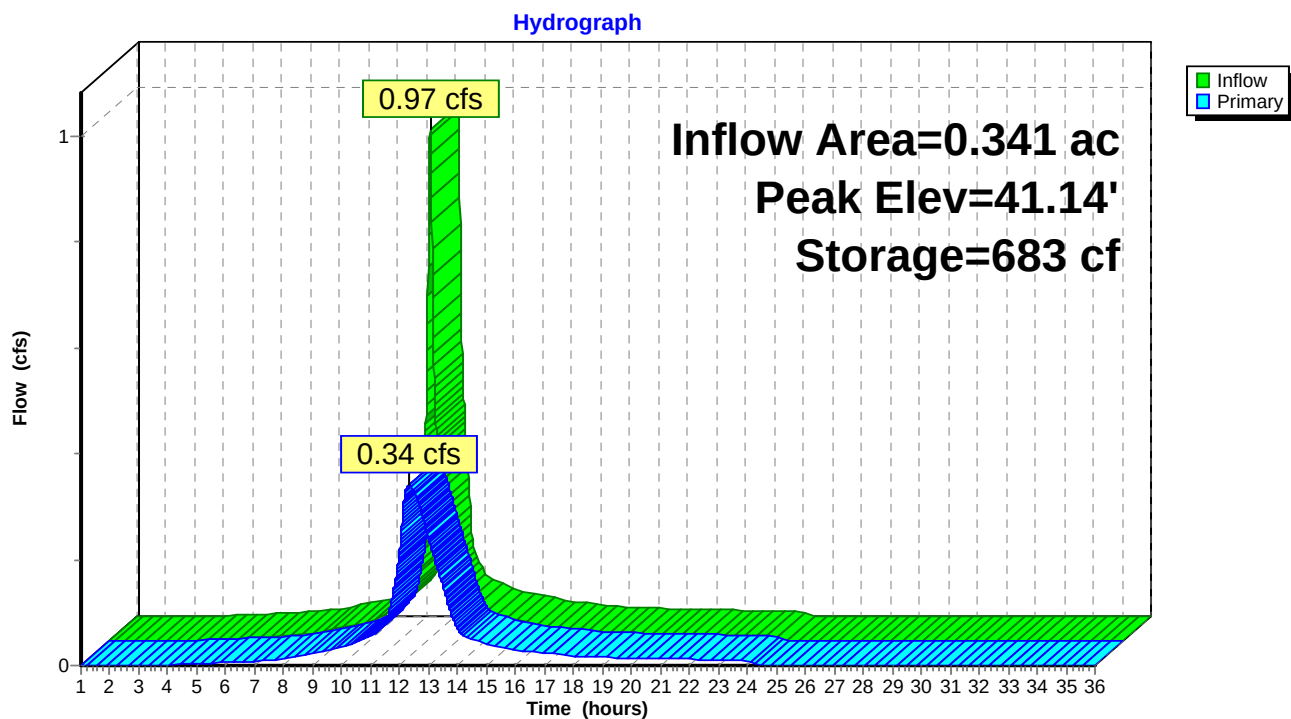
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	620	0	0
44.00	620	3,100	3,100

Device	Routing	Invert	Outlet Devices
#1	Primary	38.85'	8.0" Round Culvert L= 33.0' Ke= 0.600 Inlet / Outlet Invert= 38.85' / 36.15' S= 0.0818 '/ Cc= 0.900 n= 0.011, Flow Area= 0.35 sf
#2	Device 1	38.95'	3.0" Vert. CPV Orifice C= 0.600
#3	Device 1	43.00'	10.0" Horiz. Horizontal Overflow C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.34 cfs @ 12.35 hrs HW=41.14' TW=0.00' (Dynamic Tailwater)

1=Culvert (Passes 0.34 cfs of 2.20 cfs potential flow)
 2=CPV Orifice (Orifice Controls 0.34 cfs @ 6.92 fps)
 3=Horizontal Overflow (Controls 0.00 cfs)

Pond 1P: Tanks/Stone/OCS



Post Development April 2020

Type III 24-hr 10-year Rainfall=4.60"

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Time span=1.00-36.00 hrs, dt=0.01 hrs, 3501 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: SC1

Runoff Area=14,874 sf 91.70% Impervious Runoff Depth=4.02"

Tc=6.0 min CN=95 Runoff=1.49 cfs 0.114 af

Subcatchment2S: SC2

Runoff Area=91 sf 83.52% Impervious Runoff Depth=3.29"

Tc=6.0 min CN=88 Runoff=0.01 cfs 0.001 af

Reach 1R: POI #1 - St John St.

Inflow=0.46 cfs 0.114 af

Outflow=0.46 cfs 0.114 af

Reach 2R: POI #2 - Valley St.

Inflow=0.01 cfs 0.001 af

Outflow=0.01 cfs 0.001 af

Reach R: Total

Inflow=0.46 cfs 0.115 af

Outflow=0.46 cfs 0.115 af

Pond 1P: Tanks/Stone/OCS

Peak Elev=42.84' Storage=1,205 cf Inflow=1.49 cfs 0.114 af

Outflow=0.46 cfs 0.114 af

Total Runoff Area = 0.344 ac Runoff Volume = 0.115 af Average Runoff Depth = 4.02"
8.35% Pervious = 0.029 ac 91.65% Impervious = 0.315 ac

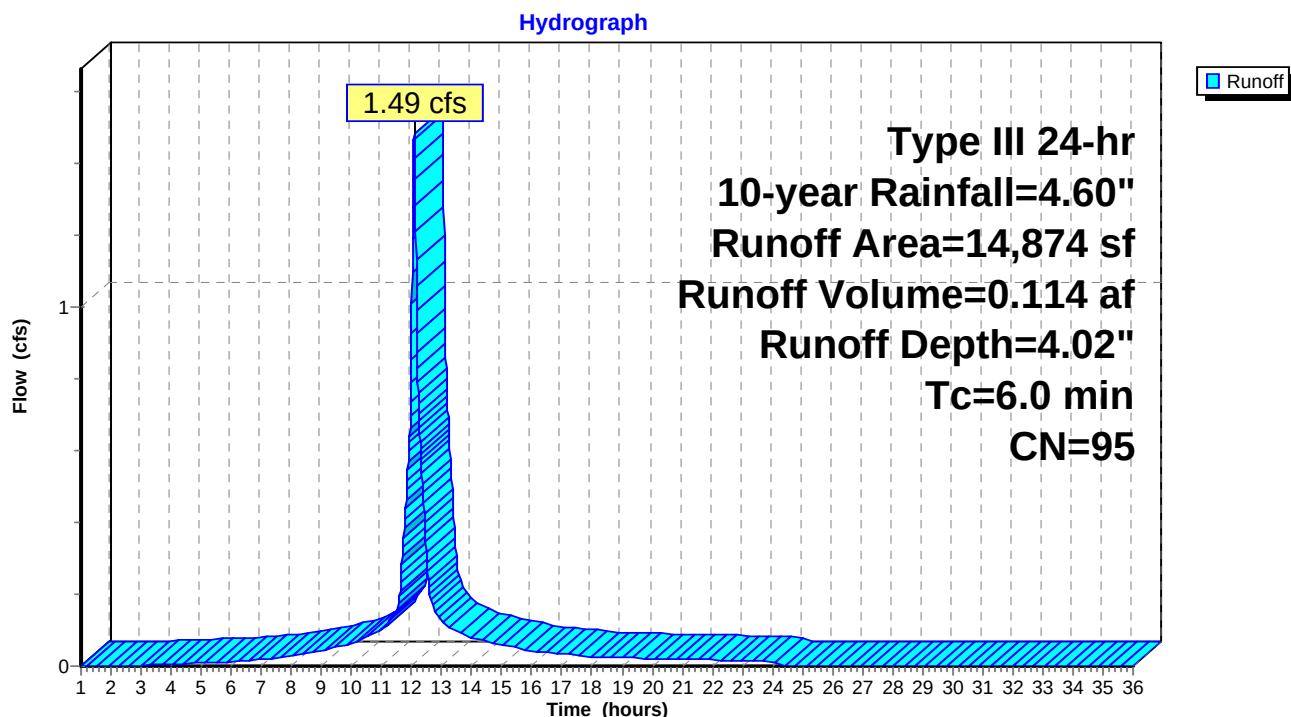
Summary for Subcatchment 1S: SC1

Runoff = 1.49 cfs @ 12.08 hrs, Volume= 0.114 af, Depth= 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.60"

Area (sf)	CN	Description
13,292	98	Roofs, HSG A
348	98	Unconnected pavement, HSG A
624	39	>75% Grass cover, Good, HSG A
* 610	96	Crushed Stone Swale
14,874	95	Weighted Average
1,234		8.30% Pervious Area
13,640		91.70% Impervious Area
348		2.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Direct Entry

Subcatchment 1S: SC1

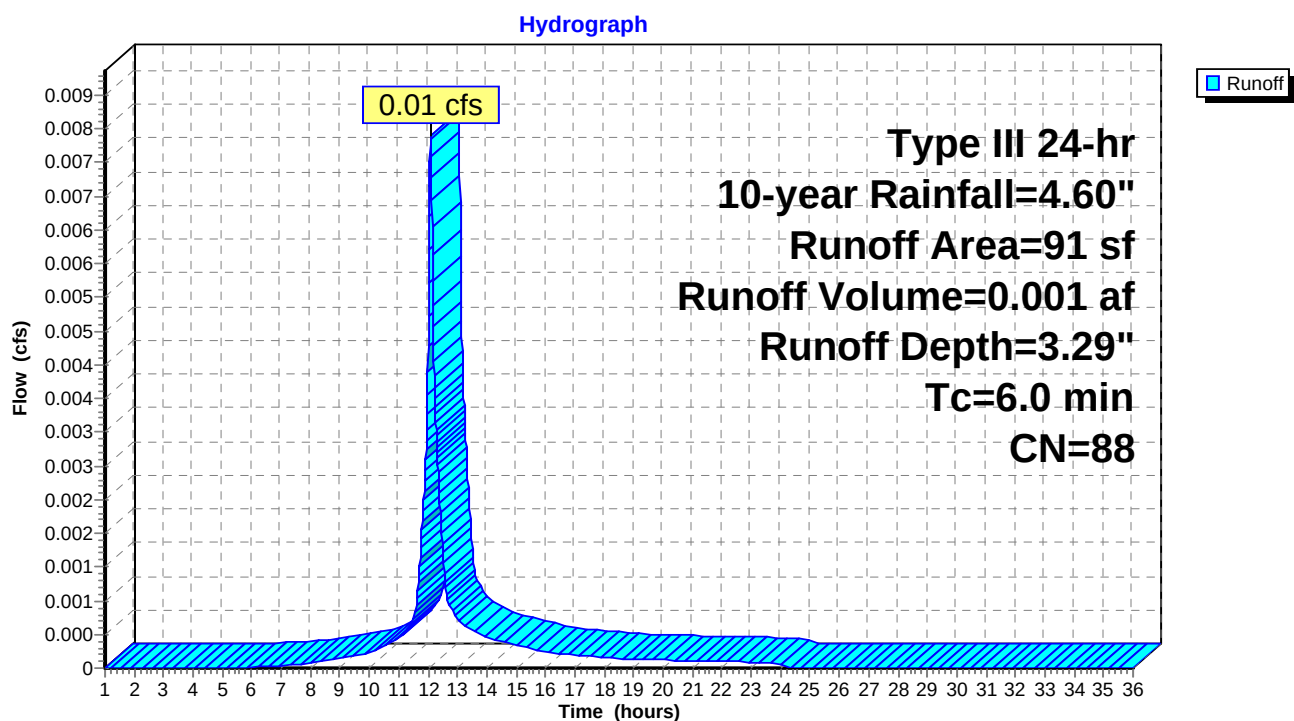
Summary for Subcatchment 2S: SC2

Runoff = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.60"

Area (sf)	CN	Description
0	98	Roofs, HSG A
76	98	Unconnected pavement, HSG A
15	39	>75% Grass cover, Good, HSG A
*	0	Crushed Stone Swale
91	88	Weighted Average
15		16.48% Pervious Area
76		83.52% Impervious Area
76		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Direct Entry

Subcatchment 2S: SC2

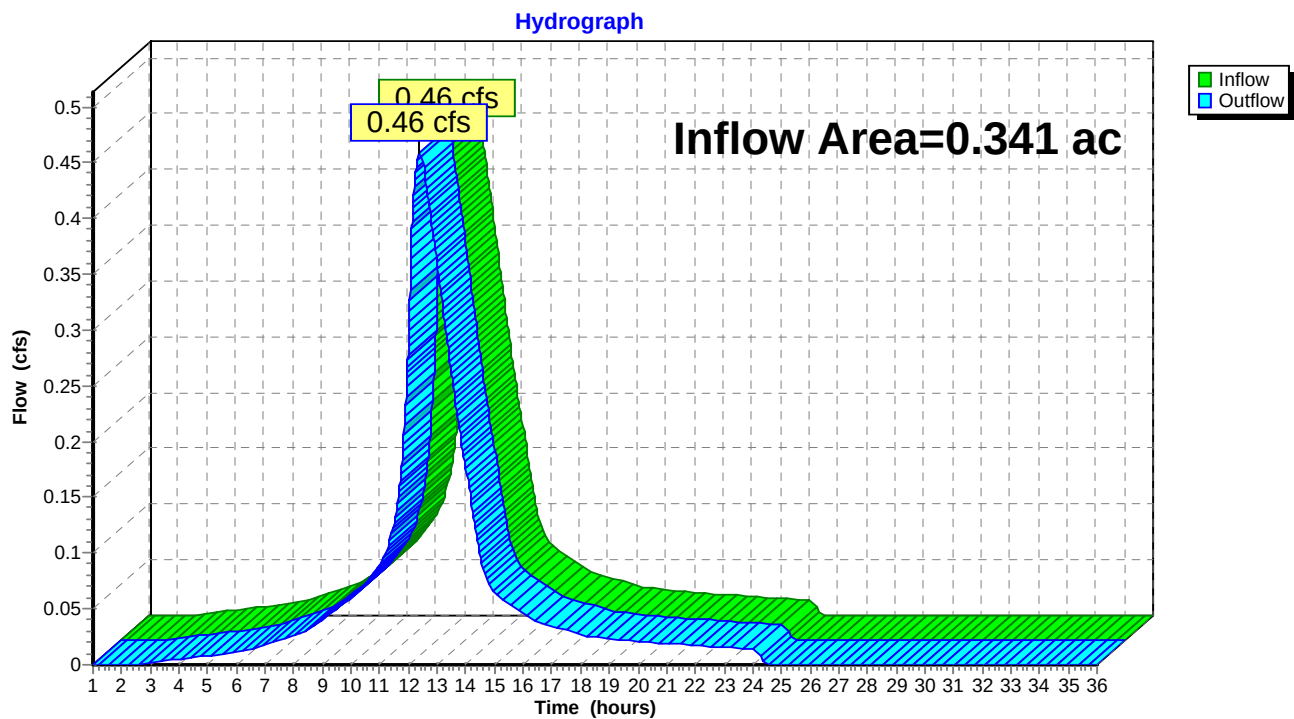
Summary for Reach 1R: POI #1 - St John St.

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.341 ac, 91.70% Impervious, Inflow Depth = 4.02" for 10-year event
 Inflow = 0.46 cfs @ 12.39 hrs, Volume= 0.114 af
 Outflow = 0.46 cfs @ 12.39 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: POI #1 - St John St.



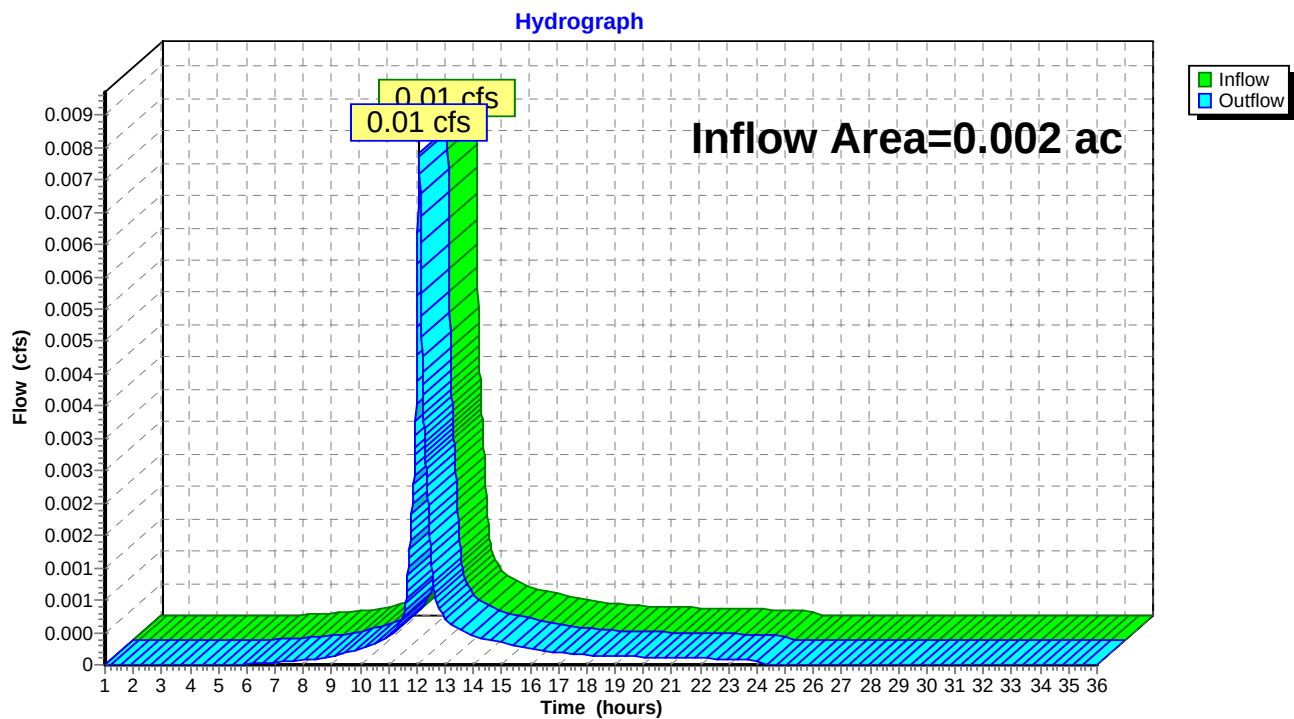
Summary for Reach 2R: POI #2 - Valley St.

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.002 ac, 83.52% Impervious, Inflow Depth = 3.29" for 10-year event
 Inflow = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af
 Outflow = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: POI #2 - Valley St.

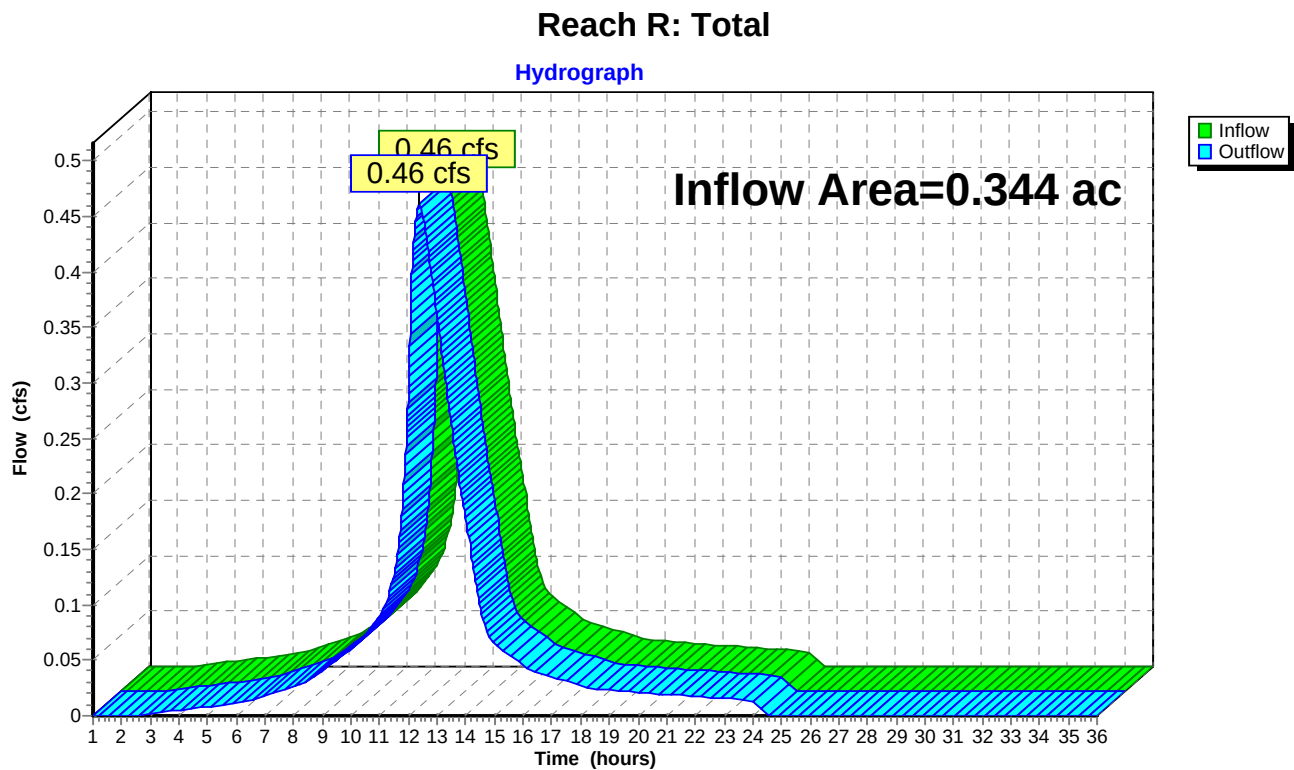


Summary for Reach R: Total

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.344 ac, 91.65% Impervious, Inflow Depth = 4.02" for 10-year event
 Inflow = 0.46 cfs @ 12.39 hrs, Volume= 0.115 af
 Outflow = 0.46 cfs @ 12.39 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs



Summary for Pond 1P: Tanks/Stone/OCS

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.341 ac, 91.70% Impervious, Inflow Depth = 4.02" for 10-year event
 Inflow = 1.49 cfs @ 12.08 hrs, Volume= 0.114 af
 Outflow = 0.46 cfs @ 12.39 hrs, Volume= 0.114 af, Atten= 69%, Lag= 18.5 min
 Primary = 0.46 cfs @ 12.39 hrs, Volume= 0.114 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 42.84' @ 12.39 hrs Surf.Area= 620 sf Storage= 1,205 cf

Plug-Flow detention time= 23.0 min calculated for 0.114 af (100% of inflow)
 Center-of-Mass det. time= 23.0 min (793.5 - 770.5)

Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	1,045 cf	Cr Stone (Prismatic) Listed below (Recalc) 3,100 cf Overall - 488 cf Embedded = 2,612 cf x 40.0% Voids
#2	39.50'	424 cf	ACF R-Tank LD 2 x 53 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 460 cf Overall x 97.0% Voids
#3	39.25'	25 cf	6.0" Round Pipe Storage Inside #1 L= 125.0' S= 0.0020 '/ 28 cf Overall - 0.2" Wall Thickness = 25 cf
		1,493 cf	Total Available Storage

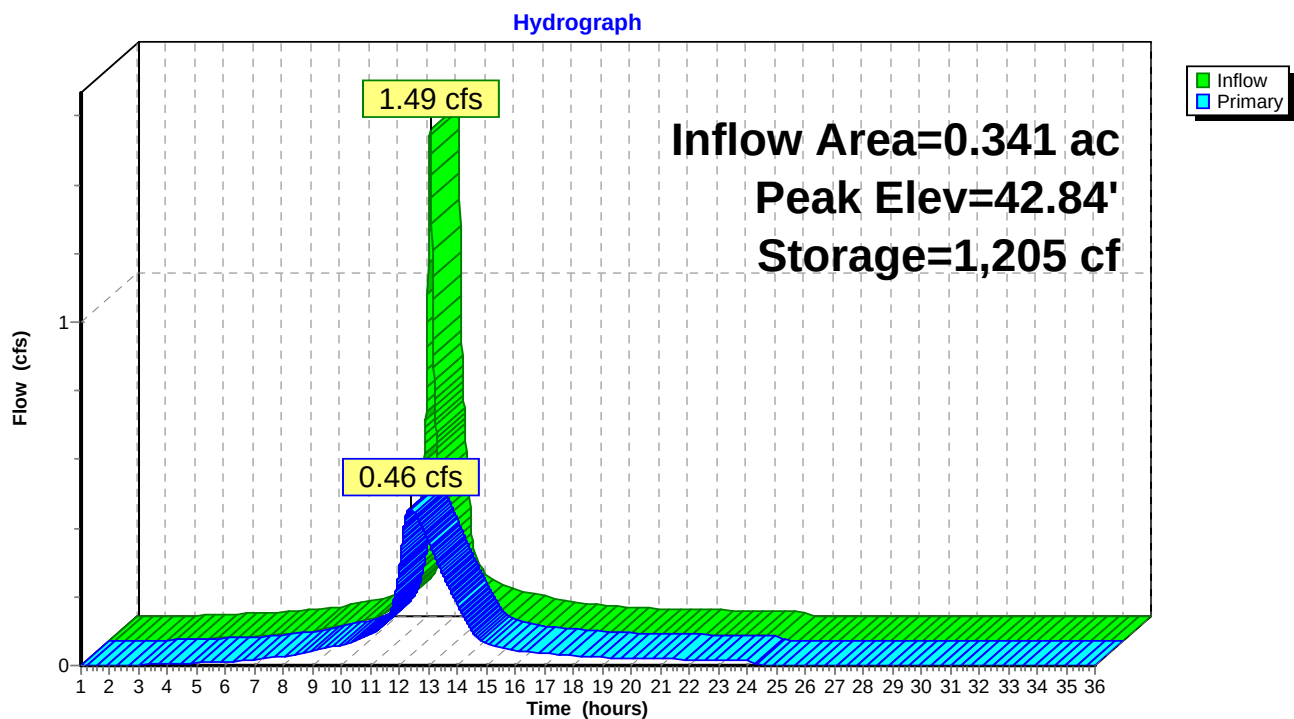
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	620	0	0
44.00	620	3,100	3,100

Device	Routing	Invert	Outlet Devices
#1	Primary	38.85'	8.0" Round Culvert L= 33.0' Ke= 0.600 Inlet / Outlet Invert= 38.85' / 36.15' S= 0.0818 '/ Cc= 0.900 n= 0.011, Flow Area= 0.35 sf
#2	Device 1	38.95'	3.0" Vert. CPV Orifice C= 0.600
#3	Device 1	43.00'	10.0" Horiz. Horizontal Overflow C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.46 cfs @ 12.39 hrs HW=42.84' TW=0.00' (Dynamic Tailwater)

1=Culvert (Passes 0.46 cfs of 3.01 cfs potential flow)
 2=CPV Orifice (Orifice Controls 0.46 cfs @ 9.34 fps)
 3=Horizontal Overflow (Controls 0.00 cfs)

Pond 1P: Tanks/Stone/OCS



Post Development April 2020*Type III 24-hr 25-year Rainfall=5.80"*

Prepared by {enter your company name here}

Printed 4/20/2020

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Time span=1.00-36.00 hrs, dt=0.01 hrs, 3501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: SC1

Runoff Area=14,874 sf 91.70% Impervious Runoff Depth=5.21"
Tc=6.0 min CN=95 Runoff=1.90 cfs 0.148 af

Subcatchment2S: SC2

Runoff Area=91 sf 83.52% Impervious Runoff Depth=4.43"
Tc=6.0 min CN=88 Runoff=0.01 cfs 0.001 af

Reach 1R: POI #1 - St John St.

Inflow=1.38 cfs 0.148 af
Outflow=1.38 cfs 0.148 af

Reach 2R: POI #2 - Valley St.

Inflow=0.01 cfs 0.001 af
Outflow=0.01 cfs 0.001 af

Reach R: Total

Inflow=1.39 cfs 0.149 af
Outflow=1.39 cfs 0.149 af

Pond 1P: Tanks/Stone/OCS

Peak Elev=43.22' Storage=1,301 cf Inflow=1.90 cfs 0.148 af
Outflow=1.38 cfs 0.148 af

Total Runoff Area = 0.344 ac Runoff Volume = 0.149 af Average Runoff Depth = 5.21"
8.35% Pervious = 0.029 ac 91.65% Impervious = 0.315 ac

Summary for Subcatchment 1S: SC1

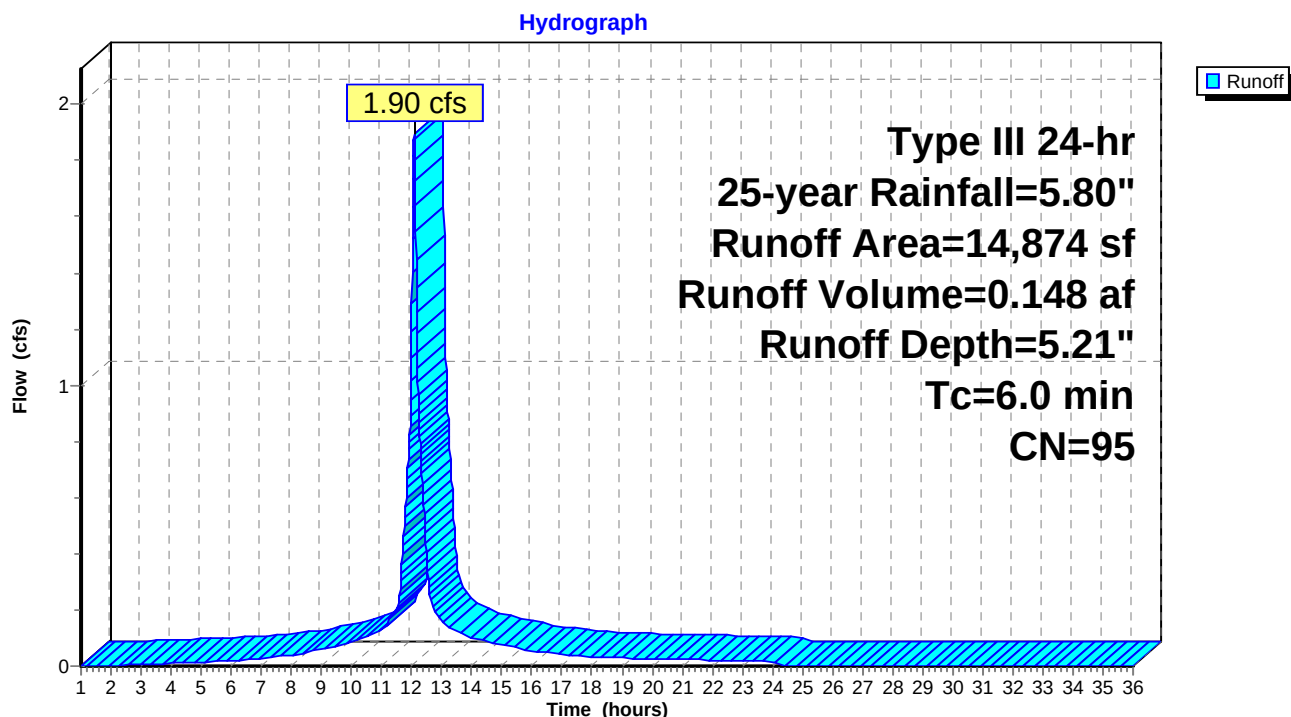
Runoff = 1.90 cfs @ 12.08 hrs, Volume= 0.148 af, Depth= 5.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
13,292	98	Roofs, HSG A
348	98	Unconnected pavement, HSG A
624	39	>75% Grass cover, Good, HSG A
* 610	96	Crushed Stone Swale
14,874	95	Weighted Average
1,234		8.30% Pervious Area
13,640		91.70% Impervious Area
348		2.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Direct Entry

Subcatchment 1S: SC1



Summary for Subcatchment 2S: SC2

Runoff = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Depth= 4.43"

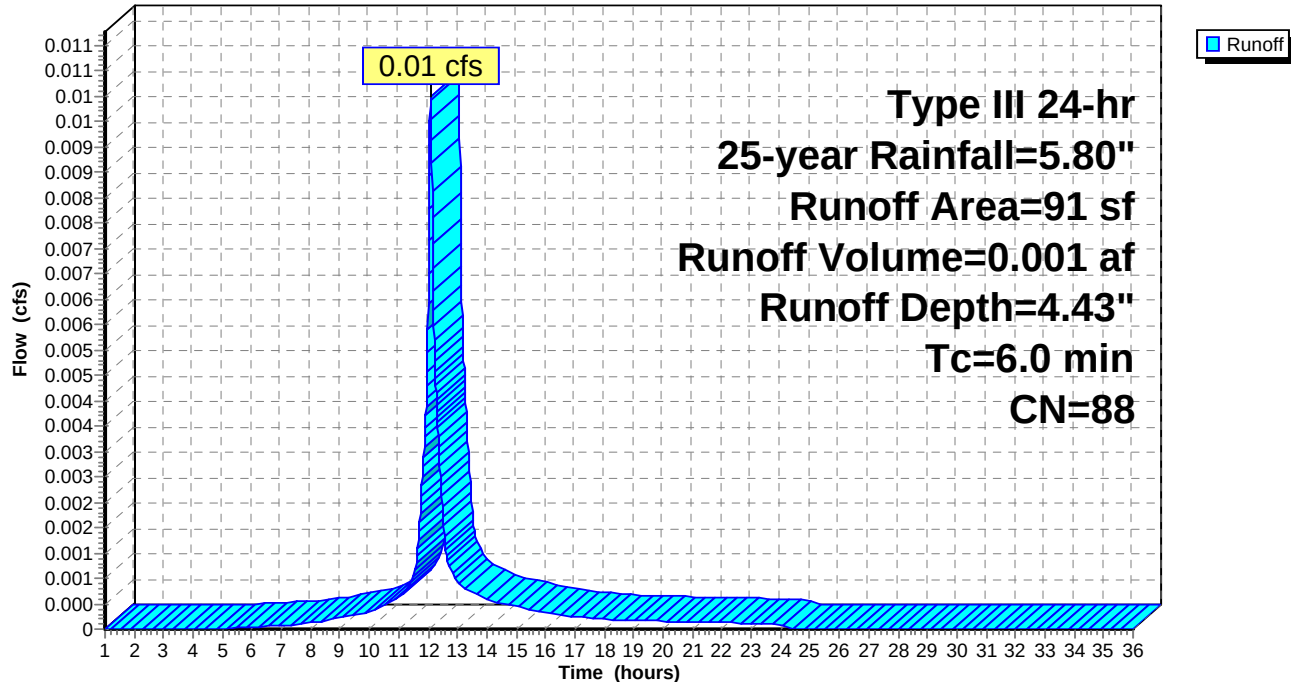
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.80"

Area (sf)	CN	Description
0	98	Roofs, HSG A
76	98	Unconnected pavement, HSG A
15	39	>75% Grass cover, Good, HSG A
*	0	Crushed Stone Swale
91	88	Weighted Average
15		16.48% Pervious Area
76		83.52% Impervious Area
76		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Direct Entry

Subcatchment 2S: SC2

Hydrograph



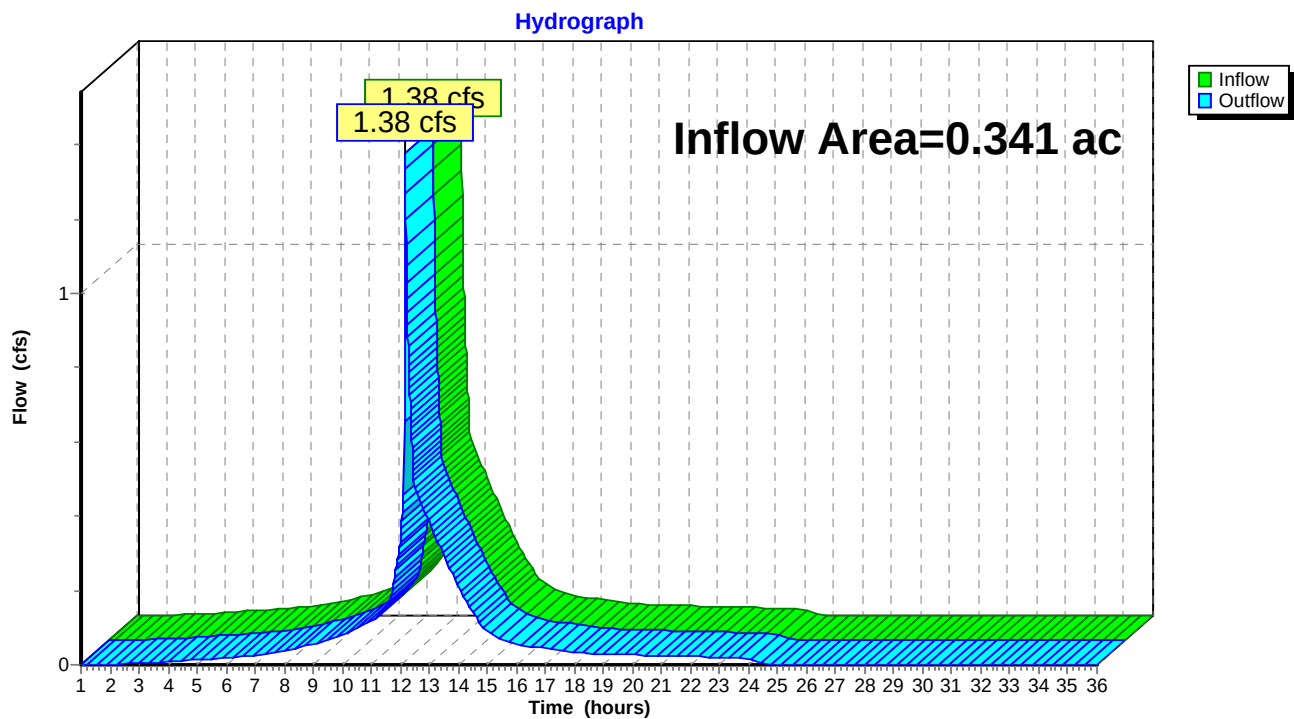
Summary for Reach 1R: POI #1 - St John St.

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.341 ac, 91.70% Impervious, Inflow Depth = 5.21" for 25-year event
 Inflow = 1.38 cfs @ 12.16 hrs, Volume= 0.148 af
 Outflow = 1.38 cfs @ 12.16 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: POI #1 - St John St.



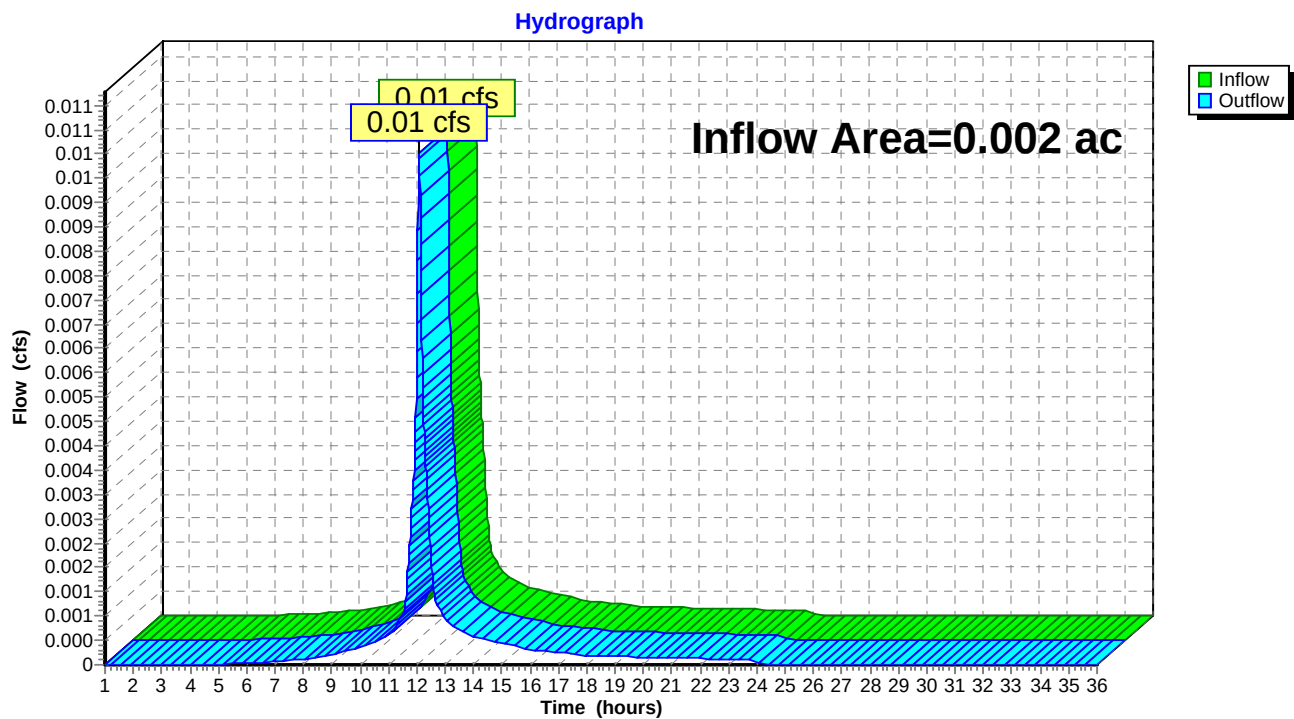
Summary for Reach 2R: POI #2 - Valley St.

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.002 ac, 83.52% Impervious, Inflow Depth = 4.43" for 25-year event
 Inflow = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af
 Outflow = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: POI #2 - Valley St.

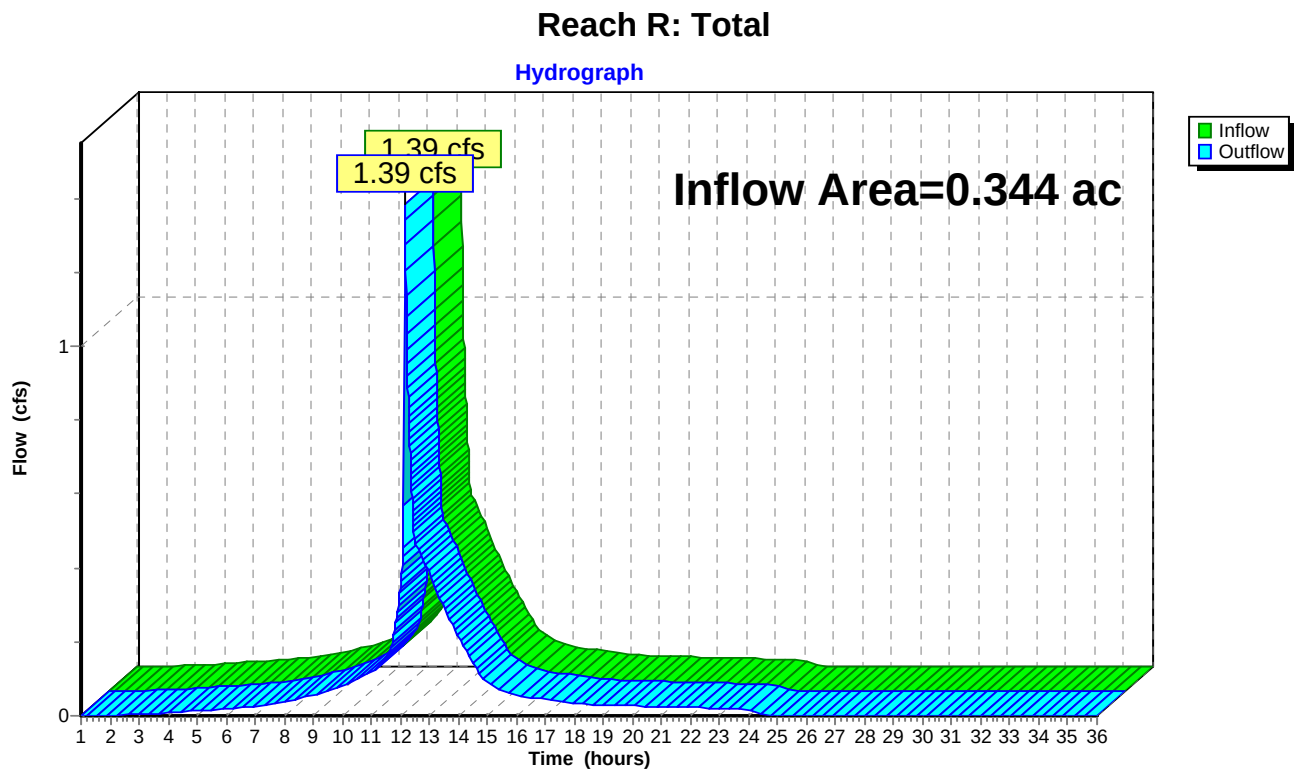


Summary for Reach R: Total

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.344 ac, 91.65% Impervious, Inflow Depth = 5.21" for 25-year event
Inflow = 1.39 cfs @ 12.16 hrs, Volume= 0.149 af
Outflow = 1.39 cfs @ 12.16 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs



Summary for Pond 1P: Tanks/Stone/OCS

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.341 ac, 91.70% Impervious, Inflow Depth = 5.21" for 25-year event
 Inflow = 1.90 cfs @ 12.08 hrs, Volume= 0.148 af
 Outflow = 1.38 cfs @ 12.16 hrs, Volume= 0.148 af, Atten= 27%, Lag= 4.5 min
 Primary = 1.38 cfs @ 12.16 hrs, Volume= 0.148 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 43.22' @ 12.16 hrs Surf.Area= 620 sf Storage= 1,301 cf

Plug-Flow detention time= 21.9 min calculated for 0.148 af (100% of inflow)
 Center-of-Mass det. time= 21.9 min (786.4 - 764.5)

Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	1,045 cf	Cr Stone (Prismatic) Listed below (Recalc) 3,100 cf Overall - 488 cf Embedded = 2,612 cf x 40.0% Voids
#2	39.50'	424 cf	ACF R-Tank LD 2 x 53 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 460 cf Overall x 97.0% Voids
#3	39.25'	25 cf	6.0" Round Pipe Storage Inside #1 L= 125.0' S= 0.0020 '/ 28 cf Overall - 0.2" Wall Thickness = 25 cf
		1,493 cf	Total Available Storage

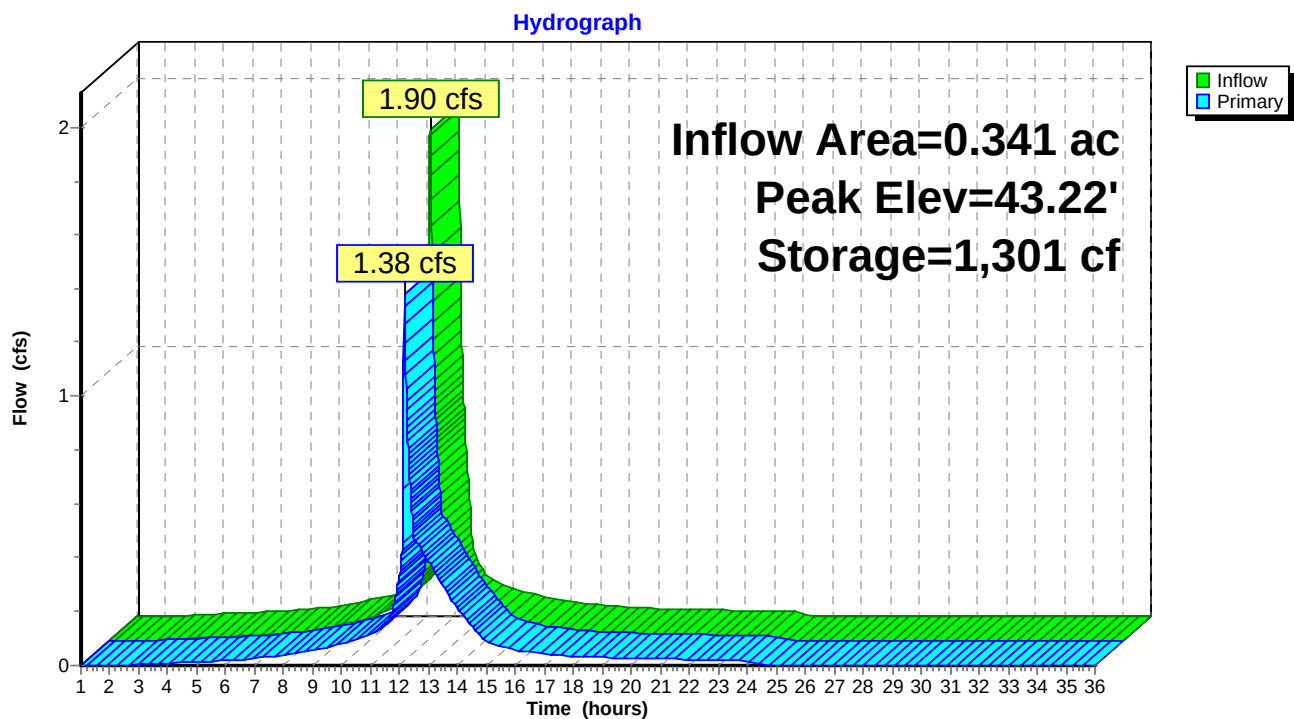
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	620	0	0
44.00	620	3,100	3,100

Device	Routing	Invert	Outlet Devices
#1	Primary	38.85'	8.0" Round Culvert L= 33.0' Ke= 0.600 Inlet / Outlet Invert= 38.85' / 36.15' S= 0.0818 '/ Cc= 0.900 n= 0.011, Flow Area= 0.35 sf
#2	Device 1	38.95'	3.0" Vert. CPV Orifice C= 0.600
#3	Device 1	43.00'	10.0" Horiz. Horizontal Overflow C= 0.600 Limited to weir flow at low heads

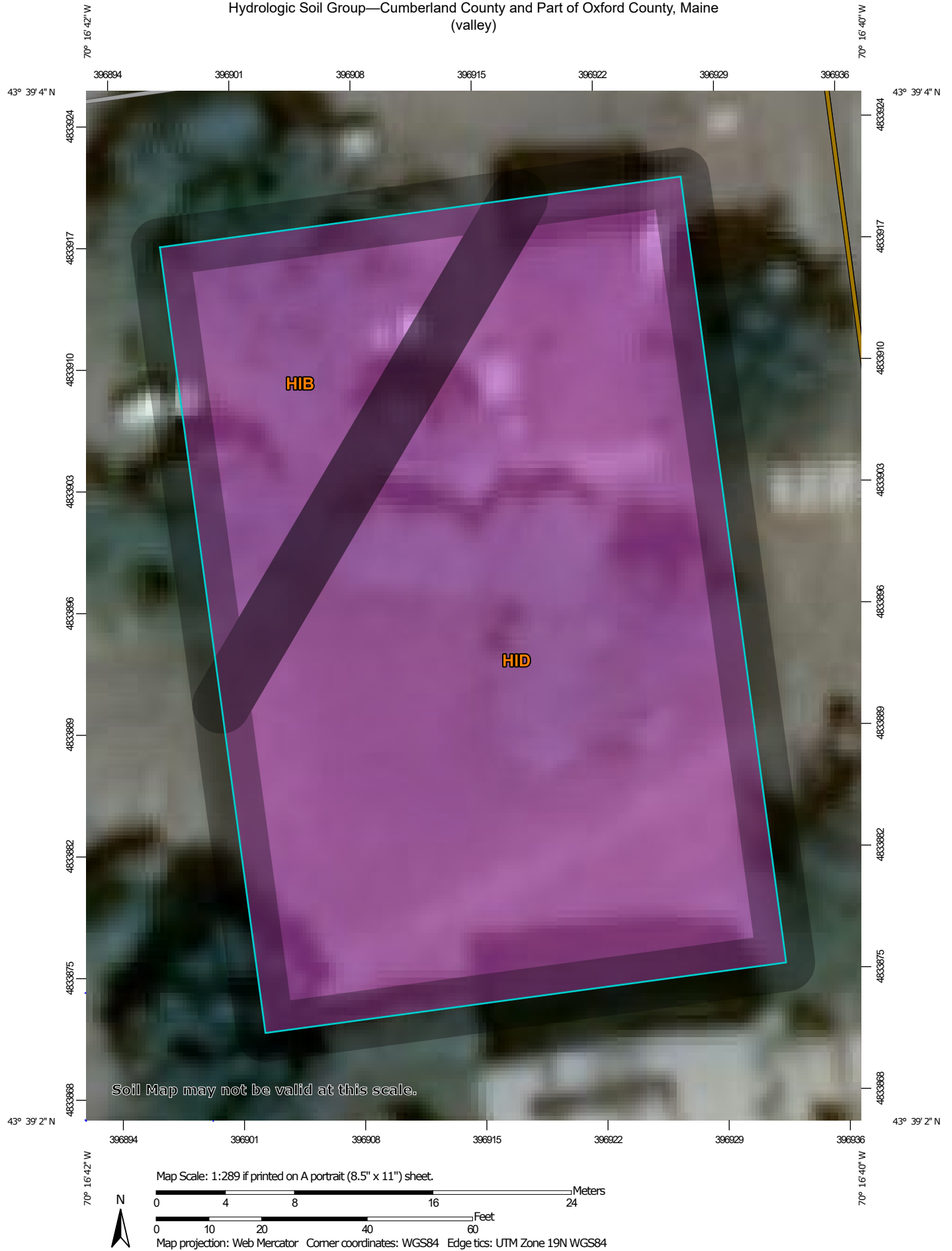
Primary OutFlow Max=1.38 cfs @ 12.16 hrs HW=43.22' TW=0.00' (Dynamic Tailwater)

- 1=Culvert (Passes 1.38 cfs of 3.17 cfs potential flow)
- 2=CPV Orifice (Orifice Controls 0.48 cfs @ 9.80 fps)
- 3=Horizontal Overflow (Weir Controls 0.89 cfs @ 1.54 fps)

Pond 1P: Tanks/Stone/OCS



Hydrologic Soil Group—Cumberland County and Part of Oxford County, Maine (valley)



Hydrologic Soil Group—Cumberland County and Part of Oxford County, Maine
(valley)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 16, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HIB	Hinckley loamy sand, 3 to 8 percent slopes	A	0.1	20.1%
HID	Hinckley loamy sand, 15 to 25 percent slopes	A	0.3	79.9%
Totals for Area of Interest			0.3	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

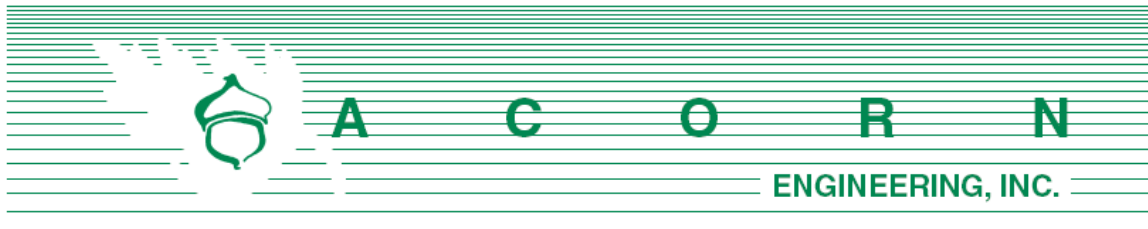
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



K. EROSION & SEDIMENTATION **CONTROL REPORT**

Prepared For:

**Avesta Valley Street, LP
307 Cumberland St.
Portland, Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
65 Hanover Street
Portland, Maine 04101**



March 2020

INTRODUCTION

Acorn Engineering, Inc. has been retained by Avesta Valley Street, LP to provide civil engineering services for the proposed redevelopment of 210 Valley St. The project proposes a 5-story, 60-unit building with the demolition of a two-story building.

The following Erosion and Sedimentation Control Report was developed in accordance with the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and the Maine DEP Chapter 500 Stormwater Management Appendix A and B (1), Amended August 12, 2015. This narrative also meets the standards required in the Maine DEP's Erosion & Sediment Control BMP's Manual, revised in 2016.

1.0 EXISTING CONDITIONS

The proposed project site is located on Valley St. A boundary plan has been prepared by Owen Haskell, Inc Surveying of Falmouth, Maine dated July 2019.

Abutting Uses:

- | | |
|-------------------|----------------------------------|
| ➤ North B-2 Zone | Business Community (Residential) |
| ➤ East ROS Zone | Recreation Open Space |
| ➤ South C-48 Zone | Conditional or Contract |
| ➤ West B-2 Zone | Business Community |

Around 10% of the existing site is comprised of rooftop with about 90% of the existing site being driveway and greenspace. The average slope is moderate with grades dropping from east to west at an average slope of approximately 16%.

1.1 Existing Soils

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County
- United States Department of Agriculture Web Soil Survey

Given the soils information, listed above, no onsite wastewater is proposed; the applicant does not intend to perform a more intense hydric soil boundary delineation because the waiver requirements set forth in the City of Portland Technical Manual – Section 7 – Soil Survey, Rev. 6/17/11 are met.

The area within and surrounding the project includes soil types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.



Table 1 - "K" Value		
Soils Type	Subsurface	Substratum
Hinckley Loamy Sand	0.17	0.17

The soil "K" value for the soil, listed above, shows a low susceptibility to erosion. The site's susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. Although soil "K" values for the soils show a low susceptibility to erosion, implementation of the proposed Erosion & Sedimentation Measures by the contractor will be of the utmost importance given the sustained slope throughout the site.

1.2 Existing Erosion Problems

There are no signs of erosion.

1.3 Critical Areas

Critical areas that would require special attention during construction include, but are not limited to, the existing structure, the drainage system within C Street and slope stabilization located within the vicinity during earthwork and foundation construction.

1.4 Protected Natural Resource

The client is not aware of the presence of any existing significant natural features located on the site as listed in Section 14-526 (b) 1. of the Land Use Code. The project is not located within a watershed classified as an Urban Impaired Stream by the Maine DEP.

1.5 Previous Construction Activity (5 years)

Acorn Engineering, Inc. is not aware of any construction related activities within the project limits within the past 5 years.

1.6 Timber Harvesting

Acorn Engineering, Inc. is not aware of any timber harvesting within the past five years.

2.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

As part of the site development, the following temporary and permanent erosion and sedimentation control devices shall be implemented. Devices shall be installed as described in this report or within the plan set. See the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices for further reference.



2.1 Temporary Erosion Control Measures

The following temporary erosion and sedimentation control measures are planned for the project's construction period:

- 2.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas. The following specifications shall be followed at a minimum:
- Stone size shall be 2-3 inches or reclaimed or recycled concrete equivalent.
 - The thickness of the entrance stone layer shall be no less than 6 inches.
 - The entrance shall not be less than 20 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
 - Geotextile fabric (woven or non-woven) shall be placed over the entire entrance area.
 - The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public roadways.
- 2.1.2 Siltation fence or erosion control berm shall be installed down gradient of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence or erosion control berm shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line or berm. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam.
- 2.1.3 Hay mulch including hydro seeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.
- 2.1.4 At any time of the year, all slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.
- 2.1.5 Valley Street and C Street shall be swept to control mud and dust from the construction site as necessary. Add additional stone to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.



- 2.1.6 During demolition, clearing and grubbing operations, stone check dams shall be installed at any areas of concentrated flow. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditch lines within 24 hours of their creation.
- 2.1.7 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14-gauge wire in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be “toed” into the ground.
- 2.1.8 Storm drain inlet protection shall be provided to storm drains using any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as necessary. Sediments shall be removed when accumulation has reached $\frac{1}{2}$ the design height.
- 2.1.9 Dust control shall be accomplished using any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.
- 2.1.10 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.
- 2.1.11 Stockpiles shall be stabilized within 7 days of formation unless a scheduled rain event occurs prior to the 7-day window, in which case the stockpile shall be stabilized prior to the rain event. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location.
- 2.1.12 For disturbance between November 1 and April 15, please refer to winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.
- 2.1.13 It is of the utmost importance that stormwater runoff and potential sediment from the construction site be diverted around the proposed underdrains until the trench is backfilled.

2.2 Permanent Erosion Control Measures

The following permanent erosion control measures are intended for post disturbance areas of the project.

- 2.2.1 All disturbed areas during construction, not subject to other proposed conditions, shall receive a minimum 4” of loam, limed, and mulched. Erosion



control blankets or mats shall be placed over the mulch in areas noted in paragraph 4.1 of this report.

2.2.2 All stormwater devices shall be installed, and tributary areas stabilized prior receiving stormwater.

2.2.3 Refer to the Maine Erosion and Sediment Control BMP manual for additional information.

3.0 EROSION AND SEDIMENTATION CONTROL PLAN

3.1 The Erosion and Sedimentation Control Plan is included within the plan set.

4.0 DETAILS AND SPECIFICATIONS

4.1 Erosion Control Details and Specifications are included in the plan set.

5.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

Winter Construction consists of earthwork disturbance between the dates of November 1 and April 15. If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15, then the site shall be protected with over-winter stabilization. Any area not stabilized with pavement, vegetation, mulching, erosion control mix, erosion control mats, riprap, or gravel base on a road shall be considered open.

The contractor shall limit the work area to areas that work will occur in during the subsequent 15 days and so that it can be mulched one day prior to a snow event. The contractor shall stabilize work areas prior to opening additional work areas to minimize areas without erosion control measures.

The following measures shall be implemented during winter construction periods:

5.1 Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

5.2 Mulching

All areas shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4-inch thickness. Mulch shall not be spread on top of snow. The snow shall be removed



down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

5.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

5.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until the final treatment can be applied. If the date is after November 1st and if the exposed area has not been loamed, final grading with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs./1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

5.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.



- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
- Stabilize the soil with mulch – By November 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

5.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.
- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with stone riprap – Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

6.0 INSPECTION AND MAINTENANCE

A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct periodic visual inspections of installed erosion



control measures. The frequency of inspection shall occur at least once every two weeks, as well as after a “storm event”. A “storm event” shall consist 0.5 inches of rain within a 24-hour period. The following Erosion and Sediment Control - Best Management Practices (BMP's) shall inspected in the manner as described.

6.1 Sediment Barriers

Hay bale barriers, silt fences and filter berms shall be inspected and repaired for the following if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should be reshaped as needed. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared and seeded.

6.2 Stabilized Stone Construction Entrances

The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way. When the control pad becomes ineffective, the stone shall be removed along with the collected soil material and redistributed on site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking on to the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

6.3 Mulched Areas

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

6.4 Dust Control

When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control.

6.5 Stormwater Appurtenances

All underdrains, storm drains, and catch basins need to be operating effectively and free of debris.



6.6 Erosion and Sedimentation Control Inspections:

Acorn Engineering has personnel qualified to conduct Erosion and Sedimentation Control Inspections. For further information, contact:

Contact: Will Savage, PE
Telephone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The Contractor has sole responsibility for complying with the Erosion and Sedimentation Report/Plan, including control of fugitive dust. The Contractor shall be responsible for any monetary penalties resulting from failure to comply with these standards.

7.0 IMPLEMENTATION SCHEDULE

The following implementation sequence is intended to maximize the effectiveness of the above described erosion control measures. Contractors should avoid overexposing disturbed areas and limit the amount of stabilization area.

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site.
2. Install perimeter silt fence or erosion control berm.
3. Commence installation of drainage infrastructure.
4. Install all other erosion control devices as necessary throughout the remainder of this schedule.
5. Commence earthwork operations, associated with the roadway construction.
6. Commence installation of utilities.
7. Continue earthwork and grading to subgrade as necessary for construction.
8. Complete installation of drainage infrastructure, as well as other utility work.
9. Complete remaining earthwork operations.
10. Install sub-base and base gravels in paved areas.
11. Install paving, curbing and brickwork.
12. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
13. Once the site is stabilized, 90% catch of grass has been obtained, or mulching of landscape areas is complete, remove all temporary erosion control measures.
14. Touch up areas without a vigorous catch of grass with loam and seed.
15. Complete site signage and striping.
16. Execute proper maintenance of all temporary and permanent erosion control measures throughout the project.



The above implementation sequence should be generally followed by the site contractor. However, the contractor may construct several items simultaneously. The contractor shall submit to the owner a schedule of the completion of the work. If the contractor is to commence the construction of more than one item above, they shall limit the amount of exposed areas to those areas in which work is expected to be undertaken during the following 30 days.

The contractor shall re-vegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event. The contractor shall incorporate planned inlets and drainage systems as early as possible into the construction phase.

8.0 CONCLUSION

The above erosion control narrative is intended to minimize the development impact by implementing temporary and permanent erosion control measures. The contractor shall also refer to the Maine Erosion and Sediment Control BMP manual for additional information.

9.0 ATTACHMENTS

- Temporary Seeding Plan
- Permanent Seeding Plan



TEMPORARY SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P₂O₅-K₂O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of temporary seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.	Recommended Seeding Dates
Winter Rye	2.57	Aug-15 to Oct-1
Oats	1.84	Apr-1 to Jul-1 Aug-15 to Sep-15
Annual Ryegrass	0.92	Apr-1 to Jul-1
Sudangrass	0.92	May-15 to Aug-15
Perennial	0.92	Aug-15 to Sep-15

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to temporary seeding and mulching.



PERMANENT SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P₂O₅-K₂O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of permanent seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.
Kentucky Bluegrass	0.46
Creeping Red Fescue	0.46
Perennial Ryegrass	0.11
Total	1.03

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

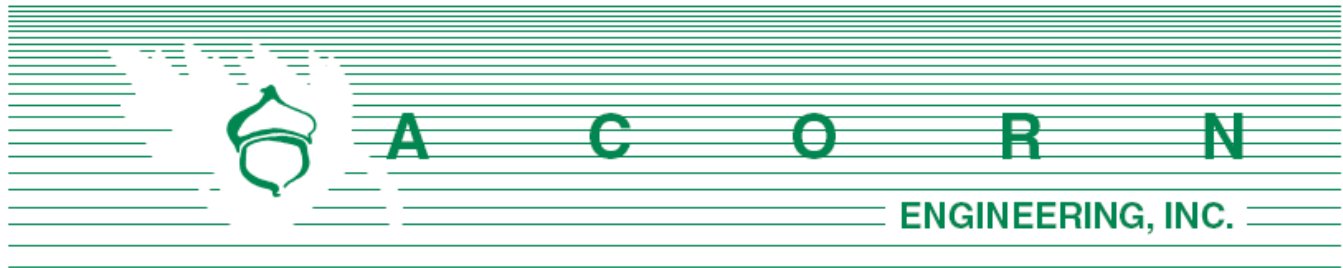
Recommendations

Permanent seeding is recommended to be completed in the spring. Later summer seeding is allowed if completed prior to September 1st. If seeding cannot be accomplished during the periods recommended for permanent seeding, then the contractor shall perform temporary seeding per the temporary seeding plan.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to permanent seeding and mulching.





Chief Thompson
 City of Portland Fire Department
 380 Congress St.
 Portland, ME 04101

April 2, 2020

Subject: 210 Valley St – Fire Department Checklist
 Section L of Application

On behalf of Avesta Valley Street, LP, the design team is pleased to respond to the Portland Fire Department Site Review Checklist.

1. Name, address, telephone number of applicant:

Avesta Valley Street, LP
 307 Cumberland Avenue
 Portland, ME 04101
 (207) 255-3345

2. Name address, telephone number of architect:

Ryan Senatore Architecture
 500 Congress Street Floor 2
 Portland, Maine 04101
 207-650-6414

3. Proposed uses of any structures [NFPA and IBC classification]

NFPA: Apartment Building / IBC: R-2

4. Square footage of all structures, including decks [total and per story]

Existing Building		
Total	Approx. 2,025	sf

Proposed Building		
Ground Floor	11,030	sf
1 st Floor	13,290	sf
2 nd Floor	12,330	sf
3 rd Floor	12,330	sf
4 th Floor	12,330	sf
5 th Floor	12,072	sf
Total	73,382	sf

5. Elevation of all structures

Based upon the average grade plane defined by the IBC, the proposed building height is approximately 60.96'. This height is above the allowable 45' within the B-2 zoning district with an additional 25' affordable housing height bonus per Division 30. Please refer to the building elevations provided by the Architect for additional information.

6. Proposed fire protection of all structures

The building will have a sprinkler system per code. Fire flows and requirements for system storage or booster pumping are subject to the fire designer which will be performed prior the request for a building permit.

7. Hydrant locations

- a. An existing hydrant is located approximately 80' to the south on the same side of Valley Street as the site. Hydrant flow data from the Portland Water District once received may be made available to the Fire Department upon request.

8. Water main size and location

The redevelopment will be serviced by a new 6" sprinkler line and 4" domestic water service from the existing water main within C Street. The building is expected to have internal sprinkler risers and a Fire Department pump connection on the street side of the building.

9. Access to all structures [min. 2 sides]

Access to the structure is provided directly from Valley and C Streets.

10. The Architect has provided a code summary (attached).

NFPA 1 – Chapter 18 Fire Department Access and Water Supply

18.2 Fire Department Access:

The project site is located in a developed area and is on the corner of two public streets. The following pavement street widths are currently available:

- Valley Street: 40 feet
- C street: 40 feet

Per NFPA 1 – Chapter 18.2.3.3.1, there will be public street access within 50 feet of at least one exterior door. Per NFPA 1 – Chapter 18.2.3.2.2.1, all first story floors shall be located not more than 450 feet from a Fire Department access road.



City of Portland Technical Manual – Section 3 Public Safety

3.4.1 Every dead-end roadway more than one hundred fifty (150') feet in length shall provide a turnaround at the closed end. Turnarounds shall be designed to facilitate future street connectivity and shall always be designed to the right (refer to Figure I-5).

Response: Not applicable

3.4.2 Where possible, developments shall provide access for Fire Department vehicles to at least two sides of all structures. Access may be from streets, access roads, emergency access lanes, or parking areas.

Response: As depicted on the site plan, the proposed building layout provides a minimum of two paved access points to the structure: from Valley Street directly and from C Street.

3.4.3 Building setbacks, where required by zoning, shall be adequate to allow for emergency vehicle access and related emergency response activities and shall be evaluated based on the following factors:

- *Building Height*
- *Building Occupancy*
- *Construction Type*
- *Impediments to the Structures*
- *Safety Features Provided*

Response: The proposed development layout has contemplated emergency access conditions and provides for safe and efficient access along the public street for emergency vehicles.

3.4.4. Fire Dept. access roads shall extend to within 50' of an exterior door providing access to the interior of the structure.

Response: The building will be provided with exterior doors that will be within 50' of a Fire Department access route, namely Valley St.

3.4.5. Site access shall provide a minimum of nine (9) feet clearance height to accommodate ambulance access.

Response: The proposed site maintains the required clearance height of nine feet in all cases.

3.4.6. Elevators shall be sized to accommodate an 80 x 24-inch stretcher.

Response: The elevators will be sized to accommodate an 80" x 24" stretcher, per the Architect's designs.

3.4.7. All structures are required to display the assigned street number. Numbers shall be clearly visible from the public right of way.



Response: The applicant will work with the City's Public Works Division to assign street addresses and numbering to meet City Standards.

Thank you for your review. Please let me know if you have any additional questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Will Savage".

William H. Savage, P.E.
Principal
Acorn Engineering, Inc.



Code Review

Apr 8, 2020

Apartment Building - 200 Valley Street, Portland, Maine

IBC 2015

NFPA 101 2018

6 floors above grade

502.1

Sprinklers

NFPA 13

NFPA 13

Fire Alarm

Monitored Fire Alarm Required

Monitored Fire Alarm Required

Smoke and CO Detectors

Smoke and CO detectors required

Smoke and CO detectors required

Occupant Load

T 1004.1.1

7.3.1.2

Basement = 8,110 sf S2 parking Garage (200 gsf/oc) = 41

Basement = 8,110 sf S2 parking Garage (200 gsf/oc) = 41

Basement = 1,668 sf Residential (200 gsf/oc) = 9

Basement = 1,668 sf Residential (200 gsf/oc) = 9

Floor 1 = 8,920 sf S2 parking Garage (200 gsf/oc) = 45

Floor 1 = 8,920 sf S2 parking Garage (200 gsf/oc) = 45

Floor 1 = 1,187 sf Community Room ASSEMBLY (15 gsf/oc) = 80

Floor 1 = 1,187 sf Community Room ASSEMBLY (15 gsf/oc) = 80

Floor 1 = 3,183 sf Residential (200 gsf/oc) = 16

Floor 1 = 3,183 sf Residential (200 gsf/oc) = 16

Floor 2 = 12,330 sf Residential (200 gsf/oc) = 62

Floor 2 = 12,330 sf Residential (200 gsf/oc) = 62

Floor 3 = 12,330 sf Residential (200 gsf/oc) = 62

Floor 3 = 12,330 sf Residential (200 gsf/oc) = 62

Floor 4 = 12,330 sf Residential (200 gsf/oc) = 62

Floor 4 = 12,330 sf Residential (200 gsf/oc) = 62

Floor 5 = 12,072 sf Residential (200 gsf/oc) = 61

Floor 5 = 12,072 sf Residential (200 gsf/oc) = 61

Total Building Occupant Load = 438**Total Building Occupant Load = 438**

Use Group(s)

310.1

Apartments (R2)

30.1

Apartment Building

S2 - Parking

Storage -Ordinary Hazard - Parking Garage

Podium Building

510.2

Type 1A below 3hr separation Type 5A above

Max Building height from grade plane for 5A type (70')

Constr. Type B and 1

T 503

1A - non-combustible protected

I (332) non-combustible protected

Constr. Type 2,3,4,5,6		T 503	5A - combustible protected		V (III) combustible protected
Building Height		T 504.3	Sprinkler NFPA13 = 70' max. For R, A, S uses		
	403.1		Building is NOT a High-Rise as the highest occupied floor is NOT		
			More than 75' above the lowest level of Fire Department Access		
Number of Stories		T 504.4	R2 = 4 Stories with sprinkler above podium		
			A2 = 3 Stories with sprinkler		
			S2 = 5 Stories with sprinkler		
Building Area		T 506.2	Sprinkler 13 = 34,500 sf max per floor (A2 is most restrictive)		
Building Elements 1A		T 601	3 hr Structural Frame	30.1.6	Apartments -No Minimum Construction requirements
		T 602	3 hr Bearing Walls Exterior (sep. dist >= 10')	42.1.6	Storage - No Min requirements
		T 602	3 hr Bearing Walls Exterior (sep. dist <10')	37.1.6	Storage - No Min requirements
		T 601	3 hr Bearing Walls Interior		
		T 601	0 hr Non-Bearing Walls Interior		
		T 602	1 hr Non-Bearing Walls Exterior (sep. dist >= 10')		
		T 602	1 hr Non-Bearing Walls Exterior (sep. dist <10')		
		705.5	Exterior Wall with >10' sep. needs rating only from inside		
		T 601	2 hr Floor Construction		
		T 601	1-1/2 hr Roof Construction		
Building Elements 5A		T 601	1 hr Structural Frame		
		T 602	1 hr Bearing Walls Exterior (sep. dist >= 30')		
		T 602	1 hr Bearing Walls Exterior (sep. dist <10')		
		T 601	1 hr Bearing Walls Interior		
		T 601	0 hr Non-Bearing Walls Interior		
		T 602	0 hr Non-Bearing Walls Exterior (sep. dist >= 30')		
		T 602	1 hr Non-Bearing Walls Exterior (sep. dist <30')		
		705.5	Exterior Wall with >10' sep. needs rating only from inside		
		T 601	1 hr Floor Construction		
		T 601	1 hr Roof Construction		

Separations					
		508.4	A2 and R2 sprinkled = 1hr	T6.1.14.4.1	Assembly and Apartments with Sprinkler = 1 hr
			S2 and R2 sprinkled = 1 hr		Apartments and Parking with sprinkler = 1 hr
			A2 and S2 sprinkled = 0 hr		Assembly and Mercantile with Sprinkler = 1 hr
		708	2 hr Mechanical Shaft > 4 stories		
		1022.1	2 hr Stair Shaft > 4 stories		
		709.1	1 hr Between Dwelling Units (revised below)	30.3.7.2	1/2 hr vertical and horizontal sep. between dwellings
		1018.1	1/2 hr Corridor	30.2.4.4.7	1 hr corridor
		508.2.5	1 hr Boiler Room	T 31.3.2.1.1	0 hr Boiler Room w/sprinklers
		508.2.5	1 hr Trash Room	T 31.3.2.1.1	0 hr Trash Room w/sprinklers
		508.2.5	1 hr Storage Room	T 31.3.2.1.1	1 hr Storage Room w/sprinklers
		508.2.5	1 hr Laundry Room	T 31.3.2.1.1	0 hr Laundry Room w/sprinklers
		715.4	90 minute Stairwell Doors (2hr shaft)		
		715.4	20 minute Apartment Entry Doors (1/2 hr corridor wall)	30.3.6.2.1	20 minute Apartment Entry Doors
Distances and Exits					
		1017.2	250' Travel Distance to exits with Sprinklers	30.2.6.2.3	200' Travel distance from apt. door to exit
		1006.2.1	125' Common Path of Travel for R use (75' for A)	30.2.5.3.2	50' Common Path of Travel
		1020.4	50' Dead End (20' in A use)	30.2.5.4	50' Dead End
				30.2.6.1.2	125' Travel Distance within Dwelling to Corridor
		403.6.2	Elevator as Means of Egress - required as building is over 4 stories		
			Generator required as Elevator is a MOE		
			Exterior Walls to meet NFPA 285 Fire Test		
Unprotected Openings		T 705.8	15% when exterior wall sep. dist. is 3'>5'		
		T 705.8	25% when exterior wall sep. dist. is 5'>10'		
		T 705.8	45% when exterior wall sep. dist. is 10'>15'		
		T 705.8	75% when exterior wall sep. dist. is 15'>20'		

		T 705.8	Unlimited when exterior wall sep. dist. is 25'>30'			
		T 705.8	Unlimited when exterior wall sep. dist. is >30'			
Parapets		705.11 (ex 5)	Note required with Class C roofing, and Fire retardant plywood 4' around perimeter of roof.			
Egress Windows		1030.1	NOT Required at the building has two means of egress			
Elevator Lobbies		3006.2	NOT required as building is not a High-rise and is sprinkled			
Elevator as a MOE			Required and needs back up generator as building is over 4 stories			
Egress Stairs		1009.1	Occ. Load >50 = 44" min width			
		1003.3	Handrails can protrude into stair 4.5" max	7.2.2.2.1.2		Handrails can protrude into stair 4.5" max
		1005.2	Door Swings may not reduce egress width by > 1/2			
		1009.2	80" min headroom	7.2.2.2.1.1(a)		6'-8" min. headroom
		1009.3	7" max. riser	7.2.2.2.1.1(a)		8" max. riser
		1009.3	11" min Tread depth	7.2.2.2.1.1(a)		9" min. tread
		1009.6	12' max. total rise between floors or landings	7.2.2.2.1.1(a)		12' max. height between landings
Ramps		1010.2	1:12 (8%) Max slope	7.2.5.2(a)		1:8 max. slope
		1010.6	60" long landings at top and bottom			
		1010.6	2% max slope of landings	7.2.5.2(a)		1:48 max. cross slope
		1010.8	>6" rise must have handrails on both sides of ramp			
Egress Corridors		1018.2	44" min. when Occ. > 50			
		1018.2	24" min. at service corridors to mechanical equipment			
Sound		1207.2	STC > 50 at walls and floors/ceilings			
		1207.3	IIC > 50 at walls and floors/ceilings			
Energy IECC 2009		T 402.1.1	0.35 Fenestration U-Factor			
Zone 6			R-49 Ceiling			
Residential			R-20 or 13+5c Framed wall			
			R-30 Floor			

				R-19 or 15c Basement wall		
				R-10 to 4ft Slab		
Accessibility				IBC 2015 Chapter 11 - 2% of units to be ANSI TYPE-A, rest are TYPE-B		
				Fair Housing Act Applies		
				Maine Human Rights Act Applies		
				ADAAG applies to Public Spaces		

M. Calculation of Wastewater Flowrate for **210 Valley St Redevelopment**

The proposed project includes a five-story building consisting of 60 residential units. Based upon the Section 4 of the Maine Subsurface Wastewater Disposal Rules, the project anticipates the following daily flows:

Estimate of Anticipated Daily Flows				
Development	Unit Size	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing Flow				
Single Family Dwelling	5-Bedroom	1	450	450
Total Gallons per Day (Existing)				450
Proposed Flow				
Residential Units	Studio	11	120	1,320
Residential Units	1-Bedroom	25	120	3,000
Residential Units	2-Bedroom	14	180	2,520
Residential Units	3-Bedroom	10	270	2,700
Total Gallons per Day (Proposed)				9,540
Net Change				+9,090 GPD
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition				

As seen above, the project anticipates an increase in daily flow of approximately 9,090 gallons. Please see attached for the formal application template.



CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Portland Dept. of Public Works -
Water Resources
55 Portland Street,
Portland, Maine 04101-2991



Bradley Roland, P.E.
Water Resources Division
Department of Public Works
55 Portland Street
Portland, ME 04103

Date: 3/27/2020

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 210 Valley St.

Proposed Use: 60 Unit Senior Apartments
Previous Use: 5 Bedroom Apartment Building
Existing Sanitary Flows: 450 GPD
Existing Process Flows: GPD
Description and location of City sewer that is to
receive the proposed building sewer lateral.

The project proposes connecting a 6" sewer lateral
to the existing sewer main in C St.

Chart Block Lot Number: 64-F-7, 64-F-8,
64-F-9, 64-F-15

Site Category	Commercial (see part 4 below)	☐
	Industrial (complete part 5 below)	☐
	Governmental	☐
	Residential	☒
	Other (specify)	☐

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: TBD Phone: 207.874.8719
Owner/Developer Name: Avesta Housing
Owner/Developer Address: 307 Cumberland Avenue, Portland, ME 04101
Phone: 207.245.3345 Fax: E-mail: CElliott@AvestaHousing.org
Engineering Consultant Name: Acorn Engineering, Inc.
Engineering Consultant Address: 65 Hanover St., Portland, ME 04101
Phone: 207.775.2655 Fax: E-mail: wsavage@acorn-engineering.com

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: 9,540 GPD
Peaking Factor/ Peak Times: Diurnal
Specify the source of design guidelines: (i.e. "Handbook of Subsurface Wastewater Disposal in Maine,"
"Plumbers and Pipe Fitters Calculation Manual," Portland Water District Records, Other (specify)
Handbook of Subsurface Wastewater Disposal in Maine

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

4. Please, Submit External Grease Interceptor Calculations.

Total Drainage Fixture Unit (DFU) Values:	0
Size of External Grease Interceptor:	NA
Retention Time:	NA
Peaking Factor/ Peak Times:	NA

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated:	0	GPD	
Do you currently hold Federal or State discharge permits?	Yes	No	X
Is the process wastewater termed categorical under CFR 40?	Yes	No	X
OSHA Standard Industrial Code (SIC):	<i>(http://www.osha.gov/oshstats/sicser.html)</i>		
Peaking Factor/Peak Process Times:	NA		

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.

O. Architectural Design Narrative

Please find attached the design narrative completed by Ryan Senatore Architecture.



April 1,2020

Caitlin Cameron
Urban Designer
City of Portland Maine
389 Congress Street
Portland, Maine 04101

Re: 200 Valley St. - Design Narrative

The proposed building to be located on 200 Valley Street in Portland's West End Neighborhood consists of 60 residential apartment units for Avesta Housing. The building is a 5 story structure along Valley Street.

Prior to developing the building concept we spent much time walking the streets and paths of the area, analyzing existing streetscapes, building massing, forms, materials and textures. This approach allowed us to develop a design concept that is grounded by the existing neighborhood context and also reflects our contemporary time. The building is located next to Florence House which is comprised of a brick base and lap siding above, the proposed building has the same type of styling.

The neighborhood is comprised of a diverse palate of Architectural forms, scales and density. Valley street and the surrounding neighborhood blocks have a variety of Architectural forms and massing.

We designed 200 Valley street using color, massing and texture to scale the building as reflected on the Valley Street elevation. The building is broken along the street wall with projecting vertical bays to scale the facade and create visual interest and shadow lines. The window pattern also helps scale the facade. The 5th floor is treated with a contrasting color panel siding with a cornice below it to scaling the facade to read as a four story structure with a cap. The window treatments with panels and connecting trim lines help to further scale the facade and create a horizontal banding element.

207-747-5159

senatorearchitecture.com

ryan@senatorearchitecture.com

500 Congress Street, Suite 2
Portland, Maine 04101



The siding materials proposed are factory finished composite lap siding and panel siding, and brick. These materials were chosen for their traditional and crisp appearance as well as long term durability. The windows proposed are dark in color to compliment the siding colors and also further reinforce the crisp simplicity of the design. The orange accent trim is used to group sections of the windows and add a modern flare. The roofing proposed is an EPDM roof membrane.

We look forward to discussing the project at the upcoming Planning Board workshop.

Sincerely,



Ryan Senatore, AIA LEED AP

Principal

207-747-5159

senatorearchitecture.com

ryan@senatorearchitecture.com

500 Congress Street, Suite 2
Portland, Maine 04101

P. Utilities

The proposed project will include installation of multiple utility services to the new building.

Water:

The existing domestic service line will be retired in accordance with Portland Water District standards. A new 6" parent connection will tie into the main and will branch off to provide a sprinkler line and domestic line to the development.

Sewer:

The existing sewer laterals will be retired in accordance with the Department of Public Works. A new 6" pvc lateral will be installed to accept the wastewater from each unit, the elevator sump, and the garage sewer after draining from the oil-water separator. The garage and elevator sump will be pumped internally to meet with the wastewater lines from the living levels before being fed via gravity to the sewer main within C Street.

Stormwater:

There is currently no drainage infrastructure on site. It is proposed to intercept the entirety of the roof runoff and store/treat it within a storage culvert system located to the rear of the site. Runoff from the covered parking area will be directed to the oil-water separator. Please see the Stormwater Management Report for more information.

UGE/T/C:

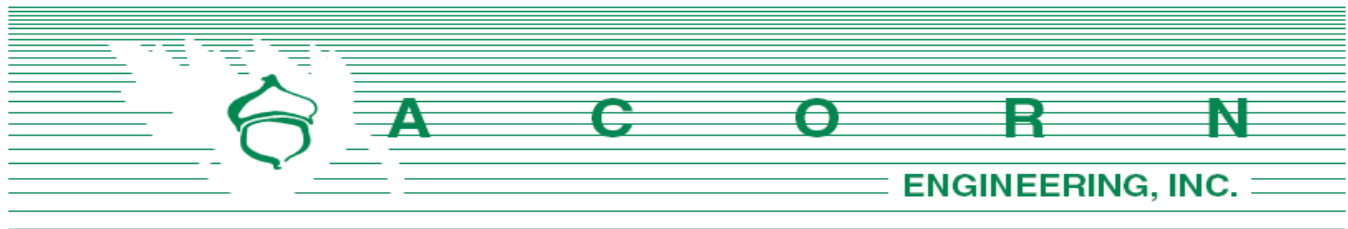
The existing aerial services to the site will be retired and new services are proposed to be routed underground from a utility pole located on C Street as seen on the Utility Plan, Sheet C-20.

Gas:

The existing gas line serving the site from Valley Street will be retired. It is proposed to install a new gas service off of the gas main within C Street as seen on the Utility Plan, Sheet C-20.

Ability to serve letters have been sent out to the respective utility companies on March 30th, 2020 in accordance with the City of Portland Code of Ordinances Chapter 14 Land Use, Section 14-527(g)(7). Responses from the utility companies can be found attached to this section.





Portland Water District
Attn: MEANS Department
225 Douglass Street
Portland, Maine 04104

March 30, 2020

Subject: 210 Valley Street Redevelopment
Re: Ability to Serve

To Whom It May Concern:

On behalf of Avesta Valley Street, LP we are pleased to submit the following request for PWD's ability to serve the proposed development. The proposed project is located along 204-210 Valley Street and 6 C Street (Chart, Book, Lots 64-F-7,8,9,15), within the B-2 Zoning District in Portland, Maine. The lot will be redeveloped into a five-story, 60-unit residential building with two levels of covered parking. The existing structure will be demolished to facilitate the redevelopment.

A 6" sprinkler line and 4" domestic line are proposed to service the redevelopment with a parent-child connection from the existing 8" main within C Street. Based upon the Section 4 of the Maine Subsurface Wastewater Disposal Rules, and assuming that the units will be comprised of 11 studio units, 25 one-bedroom units, 14 two-bedroom units, and 10 three-bedroom units, the project anticipates the following design flows:

Estimate of Anticipated Daily Flows				
Development	Unit Size	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing Flow				
Single Family Dwelling	5-Bedroom	1	450	450
Total Gallons per Day (Existing)				450
Proposed Flow				
Residential Units	Studio	11	120	1,320
Residential Units	1-Bedroom	25	120	3,000
Residential Units	2-Bedroom	14	180	2,520
Residential Units	3-Bedroom	10	270	2,700



Total Gallons per Day (Proposed)	9,540
Net Change	+9,090 GPD
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition	

The proposed project is anticipated to increase the net flow by approximately 9,090 gallons per day (GPD). It should be noted that these values were developed using conservative estimates from the State of Maine Subsurface Wastewater Disposal Rules. Additionally, the number of bedrooms per unit may change later in the design process. We will provide any changes to the anticipated water demand.

On behalf of the client, we are requesting the following information:

1. Any additional information, such as existing utility mapping within Valley and C Streets and confirmation of the location and size of the services to the existing property and the size and material of the water main within Valley and C Streets.
2. Alternative connection locations from the property to the existing system.
3. PWD's proposed infrastructure improvements within the project vicinity.
4. Flow data for adjacent hydrant.
5. PWD's ability to serve the project.

I have attached a fixture count, an existing conditions plan created by Owen Haskell, Inc., and the proposed preliminary utility plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,



Sam Lebel, E.I.
Project Engineer
Acorn Engineering, Inc.





Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

April 16, 2020

Acorn Engineering Inc.
ATTN: Sam Lebel
PO box 3372
Portland, ME 04104

Re: 204 Valley Road, PO
Ability to Serve with PWD Water

Dear Mr. Lebel:

The Portland Water District has received your request for an Ability to Serve Determination for the noted site submitted on March 30, 2020. Based on the information provided per plans received April 15, 2020, we can confirm that the District will be able to serve the proposed project as further described in this letter. **Please note that this letter constitutes approval of the water system as currently designed and is valid for eighteen (18) months after the date of issue. Any changes affecting the approved water system will require further review and approval by PWD.**

Conditions of Service

The following conditions of service apply:

- A new 4-inch service with a 1.5-inch meter may be installed from the water main in C Street. The service should enter through the properties frontage on C Street at least 10-feet from any side property lines.
- A new 6-inch fire service may be installed from the water main in C Street. The service should enter through the properties frontage on C Street at least 10-feet from any side property lines.
- The existing building is currently served with a 3/4-inch domestic water service; the size of this service is undersized for the proposed use. This service must be terminated by shutting the corporation valve and cutting the pipe from the water main. The building will be without water while the existing service is retired and the proposed service is installed. This process will take at least one day, and may take several days depending on the project.
- The Portland Water District does not have record of any other existing infrastructure in public roads and recommends a survey and test pitting be performed by the development team prior to construction. Any conflicts that arise during construction are at the risk of the developer and may result in job shutdown until new plans are submitted by the developer and reviewed and approved by PWD.
- An approved backflow prevention device must be installed on the service line directly after the meter prior to service activation. Please refer to the PWD website for more information on cross-connection control policies.



Prior to construction, the owner or contractor will need to make an appointment to complete a service application form and pay all necessary fees. The appointment shall be requested through MEANS@pwd.org or by calling 207-774-5961 ext. 3199. Please allow (3) business days to process the service application paperwork. PWD will guide the applicant through the new development process during the appointment.

Existing Site Service

According to District records, the project site does currently have existing water service. A 3/4-inch diameter copper domestic service line provides water service to the site. Please refer to the “Conditions of Service” section of this letter for requirements related to the use of this service.

Water System Characteristics

According to District records, there is an 8-inch diameter ductile iron water main in C Street and a public fire hydrant located approximately 170 feet from the site. The most recent static pressure reading was 96 psi on January 15, 2020.

Public Fire Protection

The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project. Based on the high water pressure in this area, we recommend that you consider the installation of pressure reducing devices that comply with state plumbing codes.

Private Fire Protection Water Needs

You have indicated that this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service. Please share these results with your sprinkler system designer so that they can design the fire protection system to best fit the noted conditions. If the data is out of date or insufficient for their needs, please contact MEANS to request a hydrant flow test and we will work with you to get more complete data.

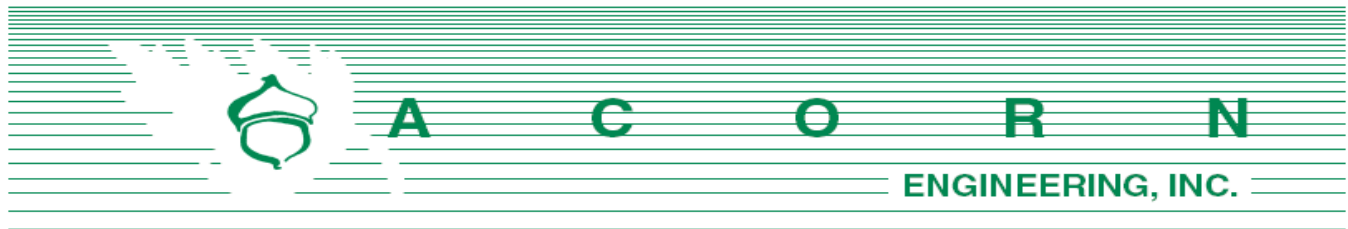
Should you disagree with this determination, you may request a review by the District’s Internal Review Team. Your request for review must be in writing and state the reason for your disagreement with the determination. The request must be sent to MEANS@PWD.org or mailed to 225 Douglass Street, Portland Maine, 04104 c/o MEANS. The Internal Review Team will undertake review as requested within 2 weeks of receipt of a request for review.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District



Robert A. Bartels, P.E.
Senior Project Engineer



Central Maine Power Company
Attn: Mr. Paul DuPerre
162 Canco Road
Portland, Maine 04103

March 30, 2020

Subject: 210 Valley Street Redevelopment
Re: Ability to Serve

Dear Mr. DuPerre:

On behalf of Avesta Valley Street, LP we are pleased to submit the following request for CMP's ability to serve the proposed development. The proposed project is located along 204-210 Valley Street and 6 C Street (Chart, Book, Lots 64-F-7,8,9,15), within the B-2 Zoning District in Portland, Maine. The lot will be redeveloped into a five-story, 60-unit residential building with two levels of covered parking. The existing structure will be demolished to facilitate the redevelopment.

It is proposed that the aerial lines currently serving the existing home be removed and new underground conduits be dropped from the existing three-phase utility pole on C Street. The conduits are proposed to cross C street to a proposed submersible transformer within the C Street public sidewalk. The building would then be served by this new infrastructure. Note the grade on C Street in this area is nearly 20%.

On behalf of the client, we are requesting the following information:

1. Any easements for overhead services currently crossing the proposed development.
2. Alternative connection locations from the development to the existing system.
3. CMP's proposed infrastructure improvements within the project vicinity.
4. CMP's ability to serve the project.
5. Access requirements to the CMP meters.

I have attached an existing conditions plan created by Owen Haskell, Inc. as well as the proposed preliminary utility plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

Sam Lebel, E.I.
Project Engineer
Acorn Engineering, Inc.



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207-775-2655 • PO Box 3372 • Portland • Maine • 04104



April 2, 2020

Acorn Engineering, INC.
C/O Mr. Sam Lebel, E.I.
PO Box 3372
Portland, Maine 04104

RE: 210 Valley Street, Portland, Maine

Dear Mr. Lebel,

This letter is to advise you Central Maine Power has sufficient three phase electrical capacity in the area to serve the subject project.

Once the project is accepted by the City of Portland, the owner will need to call our Customer Service Center at 1-800-565-3181 to sign up for a New Account and a SAP Work Request Order so we may provide an actual cost.

If you have any questions please feel free to call me at 629-1487.

Sincerely,

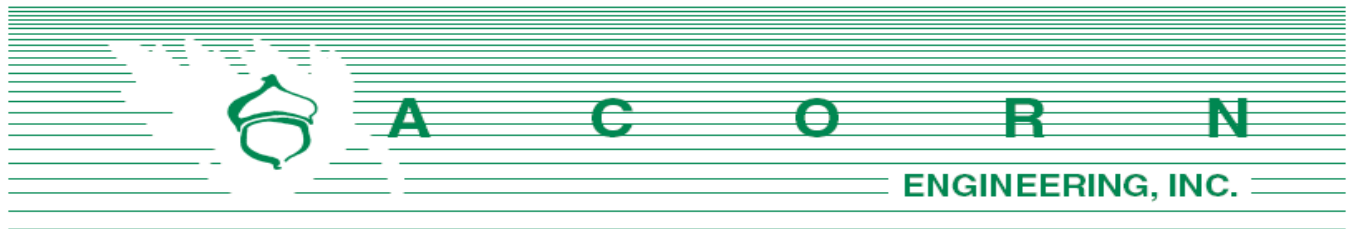
Paul DuPerre
Energy Service Specialist

162 Canco Road, Portland, ME 04103
Telephone 800.750.4000, Fax 207.791.1026
cmpco.com



An equal opportunity employer





Unitil Service Corp.
Attn: Bridget Harmon
376 Riverside Industrial Parkway
Portland, Maine 04103

March 30, 2020

Subject: 210 Valley Street Redevelopment
Re: Ability to Serve

Dear Ms. Harmon:

On behalf of Avesta Valley Street, LP we are pleased to submit the following request for Unitil's ability to serve the proposed development. The proposed project is located along 204-210 Valley Street and 6 C Street (Chart, Book, Lots 64-F-7,8,9,15), within the B-2 Zoning District in Portland, Maine. The lot will be redeveloped into a five-story, 60-unit residential building with two levels of covered parking. The existing structure will be demolished to facilitate the redevelopment.

It is proposed that the gas line currently serving the existing home from Valley Street be removed and a new service be routed from the existing gas main on the far side of C Street to the proposed building.

On behalf of the client, we are requesting the following information:

1. Any additional utility mapping such as gas lines within Valley and C Streets.
2. A confirmation of an existing gas mains within Valley and C Streets, as well as the size of any gas lines and services in the vicinity.
3. Unitil's proposed infrastructure improvements within the project vicinity.
4. Unitil's ability to serve the project.

I have attached an existing conditions plan created by Owen Haskell, Inc. as well as the proposed preliminary utility plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

Sam Lebel, E.I.
Project Engineer
Acorn Engineering, Inc.



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March 31, 2020

Acorn Engineering, Inc.
Attn: Sam Lebel, E.I.
PO Box 3372
Portland, Maine 04104

Subject: 210 Valley Street Redevelopment
Re: Ability to Serve

Dear Mr. Lebel:

Thank you for your interest in using natural gas for the above referenced project.

This is to confirm that natural gas can be made available from our distribution system to serve your proposed project. The gas main in Valley Street is a 10" coated steel high pressure main and the main located on a section of C Street is a 4" low pressure main.

There are no currently planned infrastructure improvements in the vicinity of this project. Any improvements to the existing distribution system necessary to provide this service, as well as the design of the gas system within the project will be established as the design and scope of the project progresses. Once gas loads are provided, the evaluation can be completed.

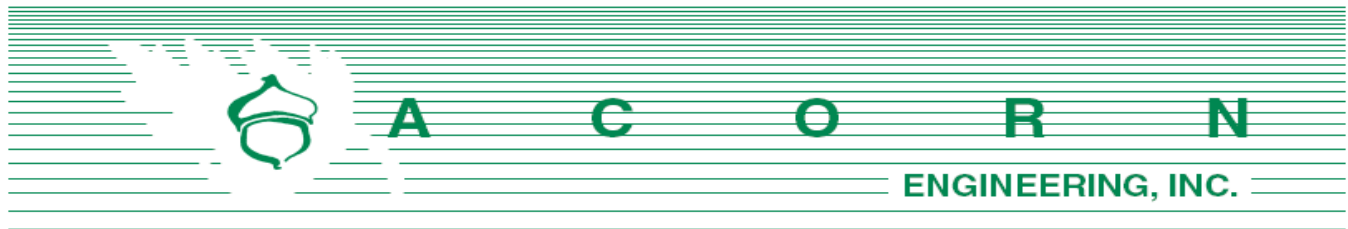
If you have any further questions or require additional information, please contact me at 207-541-2536 or email at harmon@unitil.com.

Sincerely,

Bridget L. Harmon
Business Development Representative
Unitil Service Corporation
(O) 207-541-2536

ME GAS CUSTOMER ENERGY SOLUTIONS

376 Riverside Industrial Parkway
Portland, ME 04103T 207-541-2508
www.unitil.com



Consolidated Communications
Attn: Mr. Patrick Morrison
5 Davis Farm Road
Portland, Maine 04103

March 30, 2020

Subject: 210 Valley Street Redevelopment
Re: Ability to Serve

Mr. Morrison:

On behalf of Avesta Valley Street, LP we are pleased to submit the following request for Consolidated's ability to serve the proposed development. The proposed project is located along 204-210 Valley Street and 6 C Street (Chart, Book, Lots 64-F-7,8,9,15), within the B-2 Zoning District in Portland, Maine. The lot will be redeveloped into a five-story, 60-unit residential building with two levels of covered parking. The existing structure will be demolished to facilitate the redevelopment.

It is proposed that the aerial lines currently serving the existing home be removed and new underground conduits be dropped from the existing utility pole on C Street. The conduit will cross C street to the proposed building.

On behalf of the client, we are requesting the following information:

1. Any additional information, such as utility mapping within Valley and C Streets.
2. Any easements for overhead services currently crossing the proposed development.
3. Alternative connection locations from the property to the existing communication system.
4. Consolidated's proposed infrastructure improvements within the project vicinity.
5. Consolidated's ability to serve the project.

I have attached an existing conditions plan created by Owen Haskell, Inc. as well as the proposed preliminary utility plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

Sam Lebel, E.I.
Project Engineer
Acorn Engineering, Inc.



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5 Davis Farm Rd
Portland, ME 04103
207- 878-0831 office
207-745-9363 cell
207- 797-1098 fax

March 31 2020

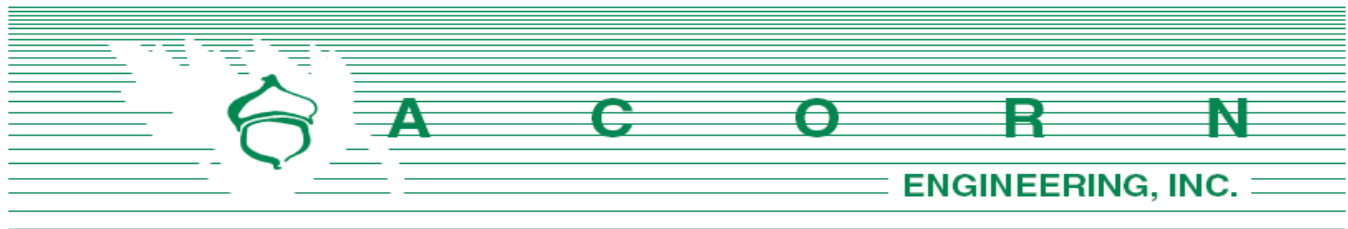
To Whom It May Concern:

My name is Patrick Morrison and I am the engineer for the Portland area. This letter is to inform that Consolidated Communications has the capacity and capability to serve the proposed redevelopment at 210 Valley St in Portland, ME. Consolidated Communications currently has aerial copper facilities on Valley and C St. We also have fiber optics cable in the nearby area on St John St. Please do not hesitate to contact me with any questions.

Sincerely,

Patrick Morrison

Consolidated Communications Outside Plant Engineer



Charter Communications
Attn: Mr. Louis Walker
118 Johnson Road
Portland, Maine 04102

March 30, 2020

Subject: 210 Valley Street Redevelopment
Re: Ability to Serve

Dear Mr. Walker:

On behalf of Avesta Valley Street, LP we are pleased to submit the following request for Charter's ability to serve the proposed development. The proposed project is located along 204-210 Valley Street and 6 C Street (Chart, Book, Lots 64-F-7,8,9,15), within the B-2 Zoning District in Portland, Maine. The lot will be redeveloped into a five-story, 60-unit residential building with two levels of covered parking. The existing structure will be demolished to facilitate the redevelopment.

It is proposed that the aerial lines currently serving the existing home be removed and new underground conduits be dropped from the existing utility pole on C Street. The conduit will cross C street to the proposed building.

On behalf of the client, we are requesting the following information:

1. Any additional information, such as utility mapping within Valley and C Streets.
2. Any easements for overhead services currently crossing the proposed development.
3. Alternative connection locations from the property to the existing communication system.
4. Charter's proposed infrastructure improvements within the project vicinity.
5. Charter's ability to serve the project.

I have attached an existing conditions plan created by Owen Haskell, Inc. as well as the proposed preliminary utility plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

Sam Lebel, E.I.
Project Engineer
Acorn Engineering, Inc.



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Q. Construction Management Plan

Project Address: 210 Valley St.

Project Description:

The project proposes demolishing the existing two-story apartment building and construction of a 5-story, 60-unit residential building.

Project Team Summary:

Owner:	Avesta Vallet Street, LP
General Contractor:	TBD
Civil Engineer:	Acorn Engineering, Inc.
Architect:	Ryan Senatore Architecture
Structural Engineer:	Structural Integrity Consulting Engineers, Inc.
Geotechnical Engineer:	Summit GeoEngineering Services

The Owner/GC and all subcontractors will work with the City of Portland and adjacent landowners to minimize any project impacts.

The GC will remain responsible for enforcement of all compliance with 1) all contract plans and specifications in their scope of work and 2) all site working conditions and safety requirements, day and night, for both persons and property, in each case for the duration of their work. These include OSHA, NIOSH, U.S. EPA, local ordinance and any other applicable governmental regulations. Both the Owner/GC and any subcontractors will remain responsible for safeguarding the general public.

The GC shall review all permits and conditions associated with the project. Refer to the Civil/Site Plan Set, Sheet C-03 Construction Management Plan for visual representation of the measures to be taken during construction.

The following outline has been developed in accordance with the City of Portland Construction Management Plan General Template and shall be referenced by the GC during construction.

A. Construction Management Principles

The control of noise, vibrations, ground movement, truck traffic, and other construction related factors will be of utmost importance. Care shall be taken to minimize these effects in the best interest of neighbors and the general public. GC to ensure that work hours conform to the City of Portland's Ordinance.

B. Development Review of Construction Management Plan

Logistics and safety program shall be submitted at or prior to the preconstruction meeting by the GC with all pertinent information required by the Maine Department of Transportation's Traffic Control Plan Standard Specification 652.3.3.



C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits

Guarantees and fees will be paid at the time of the respective application. Sections 14-530 and 13-532 will be complied with all necessary permits will be obtained prior to work.

1. Street Opening and Street Occupancy Permits:

Required permits regarding street opening and occupancy will be obtained from the Department of Public Works. The requests shall conform to the approved Construction Management Plan.

2. Blasting:

Although not anticipated, if blasting occurs, it shall conform to Article VIII. In Chapter 14 of the City Code and Section 3.7 in the City's Technical Manual.

3. Building Code:

Employ the best practices, as applicable, of Chapter 33 Safeguards During Construction, from the 2009 International Building Code.

D. Construction Administration and Communication

The Contractor will work closely with adjacent abutters, businesses, and all parties informed, as far in advance as possible, of scheduled work, particularly work anticipated to cause significant noise, vibrations, or dust. Communication in order to comply with all agreements, ordinances, and special permits will be of the utmost importance. Contractor contact information shall be posted on a sign on the construction fence along the Valley St frontage. Additional signage necessary for communication shall be provided but will be temporary and removed upon completion of the project. The contact information for the project personnel is:

Catherine Elliott
Avesta Valley Street, LP
(207) 245-3345

GC and Subcontractor information will be posted along the Valley St frontage once contracted.

E. Construction Schedule

The GC shall submit a construction timeline at or prior to the preconstruction meeting. Construction may occur during the daytime hours as defined in Section 17-18 of the Construction Activities for Building permit and City Code Section 25-129, Noise, dust and debris. Between September 1 and May 31, the following year, no person shall engage in construction activities generating noise exceeding 50 decibels, between the hours of 7 pm and 7 am of the following day within 500 feet of any buildings. From June 1 to August 31, construction activity may continue until 8 pm. No construction activity shall begin before 8



am on a Saturday, Sunday, or legal holiday. Extended hours or night work may be requested for special circumstances and street utility work if needed. These requests will be subject to approval by the Public Works Authority.

Due to the limited space within the project parcel, deliveries will need to be stored in an alternate location or deliveries must be small enough to fit within the property. Deliveries will be scheduled between 7 am and 5 pm.

The estimated timeframe of the proposed project is outlined below:

<u>Project Start Date:</u>	Summer 2021
<u>Project End Date:</u>	Fall 2022

A more detailed work schedule shall be provided by the GC at or before the pre-construction meeting with the City.

F. Security

1. The Construction Management Plan, Sheet C-03, depicts all proposed fencing and other barriers, with the intent of separating pedestrian and vehicle circulation from the construction site. Construction entrances per detail shall be installed.
2. Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 1 Chapter 16. *Safeguarding Construction, Alteration, and Demolition Operations*.
3. Fire Safety Program: Prior to construction, an overall construction and demolition fire safety program shall be developed. Essential items to be emphasized include the following:
 - o Good Housekeeping
 - o On-site security
 - o Installation of new fire protection systems as construction progresses
 - o Preservation of existing systems during demolition
 - o Organization and training of an on-site fire brigade
 - o Development of a pre-fire plan with the local fire department
 - o Rapid communication
 - o Consideration of special hazards resulting from previous occupancies
 - o Protection of existing structures and equipment from exposure fires resulting from construction, alteration, and demolition operations.
4. Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
5. Temporary security lighting shall be shown on the Construction Management Plan, and all fixtures shall be full cutoffs.

G. Construction Permitting and Traffic Control Plans

1. Construction Activity in Public Streets



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Construction activity in the public right-of-way shall be compliant with Chapter 25 Article VII of the City Code. At no time will it be permissible for construction activity including delivery vehicle to close or block streets or affect public safety access without prior notice and approval of the Department of Public Works.

2. Sewer and Stormwater

Sewer and stormwater system connections are controlled by Chapters 24 and 32 of the City code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Works. Rules and Regulations for these utility systems are available through the City Engineer's office of the Department of Public Works and in Section II of the Technical Manual. This will apply to the new connections within C St.

3. Traffic Control Plans

Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. The contractor shall submit a satisfactory "Maintenance of Traffic" (MOT) plan prior to any street opening permit approval. This document shall contain all pertinent information from the Maine Department of Transportation's Traffic Control Plan Standard Specification 652.3.3.

The MOT will address the work required for utility connections in C St. Traffic will be channelized utilizing drums and cones. Proper signage will be installed prior to the through work zone. Alternating traffic will be controlled with flaggers. Trenches will be patched with pavement daily.

The MOT plan shall provide for the safe passage of the public through or along the construction work zone. It may be permissible to close a portion of Valley St or C St during utility connections and/or detour a mode of traffic when absolutely necessary for safety. All requests shall be subject to City approval. MOT plans shall employ the appropriate techniques and devices as called for in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

- Construction speed signing may be used as needed to slow traffic.
- Traffic Control signs shall not be placed where they would create any obstructions to bicycles or pedestrians.
- Flaggers will be utilized when necessary.

All existing modes of travel in the work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning and laying out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Works. The MOT should also address on-street parking impacts, including deliveries and parking for adjoining businesses and property owners, analysis of roadway capacity or diversion capacity if street closure or change to roadway capacity is required, and coordination with other on-going or future construction or utility projects in the vicinity.



- Traffic control bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycle and pedestrians.
- Barrier systems utilized to separate the construction activity from the public street and /or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.
- ADA compliance in all capacities shall be maintained.

Use of public parking spaces on Valley St and C St shall not be permissible. The blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Works.

H. Site Management and Controls

1. Regular trash and debris shall be managed appropriately, and its removal shall comply with all local, state, and federal regulations.
2. Street cleaning and sweeping shall be followed as outlined in the erosion and sedimentation control notes and report. Damage to the street shall be avoided and shall be the responsibility of the contractor.
3. Dust shall be controlled and shall comply with Section 25-129 and the erosion and sedimentation control notes, plan, and details.
4. Noise shall be controlled and shall comply with Section 17-18 and Section 25-129.
5. Rodent Control shall be provided, if applicable, by a professional exterminator and shall be consistent with Chapter 22 of the City Code.
6. Snow and Ice Removal shall be provided. Pursuant to Section 25-173, the Contractor shall ensure a safe means of travel within the work zone by the following steps:
 - a. Snow/ice removal or commence automatically from 1" or greater of snow or ice
 - b. Remove snow as needed within the work zone, including parking spaces. Driveways and site lines shall not be blocked by piles of snow.
 - c. Clear all walks and ramps within the work zone
 - d. Sand or salt as needed
 - e. Clear all basin or drainage to help snow melt
 - f. The above steps shall be carried out Sunday-Saturday including holidays.

I. Erosion & Sedimentation Control

1. The Contractor shall install all erosion and sedimentation controls as depicted on the approved Construction Management Plan, C-03, and the approved erosion and sedimentation control report, prior to the pre-construction meeting for inspection by the City. The Contractor shall regularly inspect the control measures, no less than weekly and after storm events (0.5" or more in 24 hours). Additionally, temporary or permanent stormwater management systems shall be inspected and maintained to



ensure working order. The Contractor shall document all inspection activities and corrective actions and be prepared to provide these documents for inspection by the City, Maine Department of Environmental Protection (MDEP) or the U.S. Environmental Protection Agency (EPA) upon request.

2. Due to the existing sparse landscaping on site, no protection during construction will be necessary.
3. Stored materials shall be identified and avoid being located under/near trees.

J. Construction Staging Area

1. The Contractor shall submit a plan with locations depicted for the location of material staging areas, the location of on-site temporary construction trailers, the location of on-site truck delivery holding areas, the location of on-site truck washing stations, masonry mixing stations, the general location of the construction security fence and the general location of temporary construction dumpsters. This plan shall be submitted at or prior to the pre-construction meeting. Any open storage areas shall be shown on the plan.
2. Delivery Truck Holding Areas On-Site: The majority of materials delivered to the site will be scheduled such that they are able to be off-loaded immediately. On days when the construction activities require multiple truck deliveries, these deliveries will be carefully scheduled so that there is always adequate on-site area for the holding of trucks until they can be unloaded. Once at the site all vehicles will be brought within the fence line and will make every attempt to avoid queuing on public streets. If, for any reason, on-site holding of trucks is not feasible, an off-site location must be designated and shown on the submitted plan referenced above in J.1.
3. All deliveries for materials shall comply with the City's noise requirements.

K. Parking During Construction

1. Adequate parking for construction workers shall be provided on site or arrangements for off-street parking at an off-site location shall be provided.
2. Truck Routes and Volumes: The following quantities are estimated as part of the reconstruction:
 - Gravel & Stone – Approx. 1,000 CY. Earthwork subcontractor(s) pit to project site.
 - Hot Mix Asphalt – Approx. 350 tons. Paving subcontractor(s) pit to project site.

L. Dewatering Plans

A basic dewatering plan for any construction work is required. The plan must cover construction sites where groundwater is not expected but the impact of rainwater may require dewatering. The plan must include operating procedures, equipment to be used, including filters, erosion and sediment control measures, or other methods of removing sediment from approved discharges.



For construction work that will require frequent dewatering of groundwater from site, a dewatering plan must be prepared and approved by the Department of Public Works. Groundwater and/or soil testing may be required to determine course of action if treatment is necessary. Approval for all discharges to City infrastructure is required. The proposed plan must address the following:

- Project duration, discharge location, storage equipment on-site, dewatering schematic, and emergency contact.
- General requirements include trained staff on-site for all approved discharges and required site log for documentation of all discharges.
- Storage and/or treatment process should include proper settling time and maintain proper use of filtering medium as required.
- Contingency/maintenance plan for all dewatering equipment devices and filtration mediums.

Any water that is removed from an excavation must be pumped from a perforated device buried in crush stone prior discharge and/or prior to storage and treatment. There will be no discharge allowed during precipitation events.

M. Special Measures as Necessary

No special measures are necessary for the proposed reconstruction.

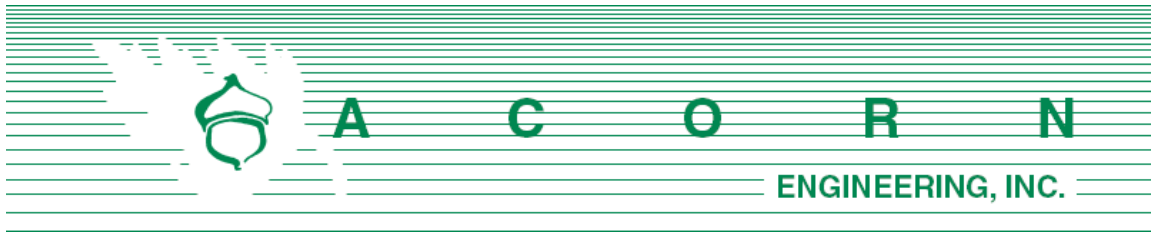


R. Solid Waste Disposal

The property management company or Owner shall be responsible for locating the solid waste and recyclable material to the space allocated for solid waste storage as noted on the Site Plan (C-10).

The solid waste containers will be fully enclosed and screened from the public view. A private hauler will be contracted with for removal.





S. TRANSPORTATION **AND PARKING ANALYSIS**

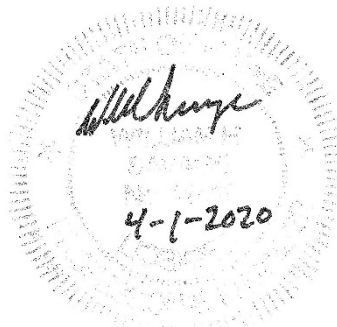
210 Valley St Redevelopment

Prepared For:

**Avesta Valley Street, LP
307 Cumberland St.
Portland, Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
65 Hanover Street
Portland, Maine 04101**



April 2020

SUMMARY

The proposed project is located at the intersection of Valley and C Streets, within the R-2 Residential Zoning District in Portland, Maine. The proposed lot is a combination of multiple properties which presently include Portland Tax Map 64-F-7,8,9 and 15 comprising 14,964 square feet. Abutting uses are residential, retail and office space, and recreational open space. The redevelopment proposes a 5-story, 60-unit apartment building, offering a mix of studio and 1-, 2-, and 3-bedroom units. The building will be set into the slope, taking advantage of the grade change while “hiding” the ground level parking from the streetscape, with driveway access from C Street. A second level of parking will be provided on the first floor of the proposed development, with driveway access from Valley Street.

The location of the proposed re-development offers a variety of multi-modal transportation opportunities, many of which are existing and already in use by the community at large. The project location provides central access to Congress Street connections with Interstate 295 North and South for automobile transportation. A well-maintained sidewalk system provides access to the many nearby businesses, employment hubs, and other points of interest. Services within walking distance include a grocery store, bank, two medical providers, and local and regional transportation. Existing bus pull-offs along St John Street provide the community with convenient access to the METRO bus service. Additionally, St John Street is already set up to provide travel for bicyclists with its on-road bikeway. With these resources in place, the applicant proposes to provide two levels of internal parking at a ratio to be determined by the planning board per Section 14-332.2 of the City Code of Ordinances and strongly encourage multimodal transportation, aligning itself with the City’s many transportation and sustainability goals.

PURPOSE

This report aims to identify strategies to minimize parking demand and reduce automobile travel to and from the site. While a Transportation Demand Management Plan is not technically required for the proposed redevelopment, Acorn Engineering has prepared the following report as an engineering best practice. We begin by summarizing trends for existing, similarly sized apartment buildings in Portland. An estimate of parking demand for the proposed project can then be calculated using ratios of unit quantity and the resulting parking demand for a range of scenarios. This estimate allows us to evaluate the proposed 210 Valley St parking-layout’s ability to serve the redevelopment. Finally, we identify methods to reduce parking demand and automobile travel.

PROJECTED PARKING DEMAND

A baseline estimate was calculated using demand data outlined in the Institute of Transportation Engineers “PARKING GENERATION” (5th Edition) publication. An average peak parking demand was found using the 0.30 spaces/bedroom rate identified by the Institute of Transportation Engineers (ITE). At this rate, the demand for the proposed project is 26 spaces for a typical weekday condition. See the table below.



Proposed Use	Unit Size	Total Bedrooms	Parking Space Rate (spaces/bedroom)	Parking Spaces
Residential Apartment	11 studio, 1-bedroom units	11 bedrooms	0.3	3 space
Residential Apartment	25 1-bedroom units	25 bedrooms	0.3	8 spaces
Residential Apartment	14 2-bedroom units	28 bedrooms	0.3	8 spaces
Residential Apartment	10 3-bedroom units	30 bedrooms	0.3	9 spaces
TOTAL	60 Apartment Units	94 bedrooms	-	28 spaces

Although the ITE parking space / bedroom estimation provides an adequate baseline, the proposed development at 210 Valley St was then compared to several comparable developments in Portland under common ownership by the Applicant to evaluate the redevelopment against existing parking ratios approved by the City.

The table below summarizes comparable properties in Portland also below the typical 1:1 ratio:

Location / Reference	Unit Count	Parking Space Total	Parking Space Rate (spaces/unit)
Thomas Heights	18	1 space	0.05
409 Cumberland	57	17 spaces	0.30
Pearl Place	114	77 spaces	0.67
Carleton Street	37	18 spaces	0.48
Pak Street Lofts	37	8 spaces	0.22
Institute of Transportation Engineers	60	32 spaces	0.53

From the above tables, the conservative estimate for parking demand is 0.67 spaces/unit. Accordingly, the applicant proposes 40 parking spaces on site to serve the 60 units.

Location	Total Units	Total Bedrooms	Proposed Parking Spaces	Parking Space Rate (per bedroom)	Parking Space Rate (per unit)
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Proposed 210 Valley St Parking	60 Units	94 bedrooms	40 spaces	0.43	0.67
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The estimate provided by the ITE and real-world data gathered from comparable properties are more indicative of the actual parking demand than the 1 parking space per unit requirement stated in the City ordinance. As such, the Applicant will be seeking a ratio of less than 1:1 for the affordable units which the Planning Board has the authority to allow under Section 14-332.2 of the City Code.

PARKING AND TRIP REDUCTION STRATEGIES

The proposed and existing strategies to be utilized in the proposed redevelopment are summarized below.

Unbundling Rent and Parking Fees:

As the primary incentive to reduce parking demand, the applicant proposes to unbundle rent and parking. This strategy has been shown to effectively reduce demand as tenants usually opt for alternative modes of travel or simply choose not to buy parking when parking spaces are charged as a separate fee.

Bicycle Parking:

The applicant proposes abundant bicycle parking both internally, in a storage room specifically for bicycles, and externally on existing racks. 24 bicycle parking spaces will be provided in the internal bike storage room using wall or floor mounted racks of Dero (or approved equivalent) design. 3 additional bicycle racks are proposed on the Valley and C street frontages, providing 6 additional parking spaces for both tenants and the general public.

Bus Service Access:

METRO Route 1 passes within one block of the proposed project site with two designated bus pullouts with 650' of C Street. This bus route serves the Portland Peninsula and offers connections with the Elm Street hub. Information on the METRO's bus routes and schedule will be posted throughout the building. Additionally, the Portland Transportation Center is approximately one mile from the site, providing access through both the state and the region.

Pedestrian Access:

An extensive system of well-maintained sidewalks surrounds the site, connecting the existing building with the many proximate businesses the peninsula has to offer. A cross walk located in front of the proposed building's main entrance provides pedestrians with convenient passage across Valley Street. The applicant will also be providing signage throughout the building that identifies destination locations within walking distance of the site (i.e. the nearby Western Prom, Fore River Parkway Trail, Veterans Memorial Bridge to S. Portland, Valley St Community Garden, Portland Farmer's Market, etc.).



CONCLUSION

The proposed redevelopment aims to reduce parking demand through a combination of strategies, including: unbundling rent and parking fees, access to public transportation, promoting use of nearby bicycle and pedestrian routes, a centralized location with many proximity businesses, and the planned affordability of the units. The proposed two levels of covered parking, offering 40 parking spaces, is designed to complement available space within the site, ITE recommendations for affordable housing developments, and precedent set by similar Avesta properties. Acorn Engineering finds these considerations in alignment with the City's many transportation and sustainability goals, providing an ideal framework for the Planning Board to approve a ratio below 1:1 for the proposed 210 Valley St redevelopment as outlined in Section 14-332.2 for the 48 affordable units.

ATTACHMENTS

- A. Multi-modal Context Map for 210 Valley Street
- B. Bicycle Storage Exhibit
- C. METRO Bus Route #1 and Schedule



Attachment A

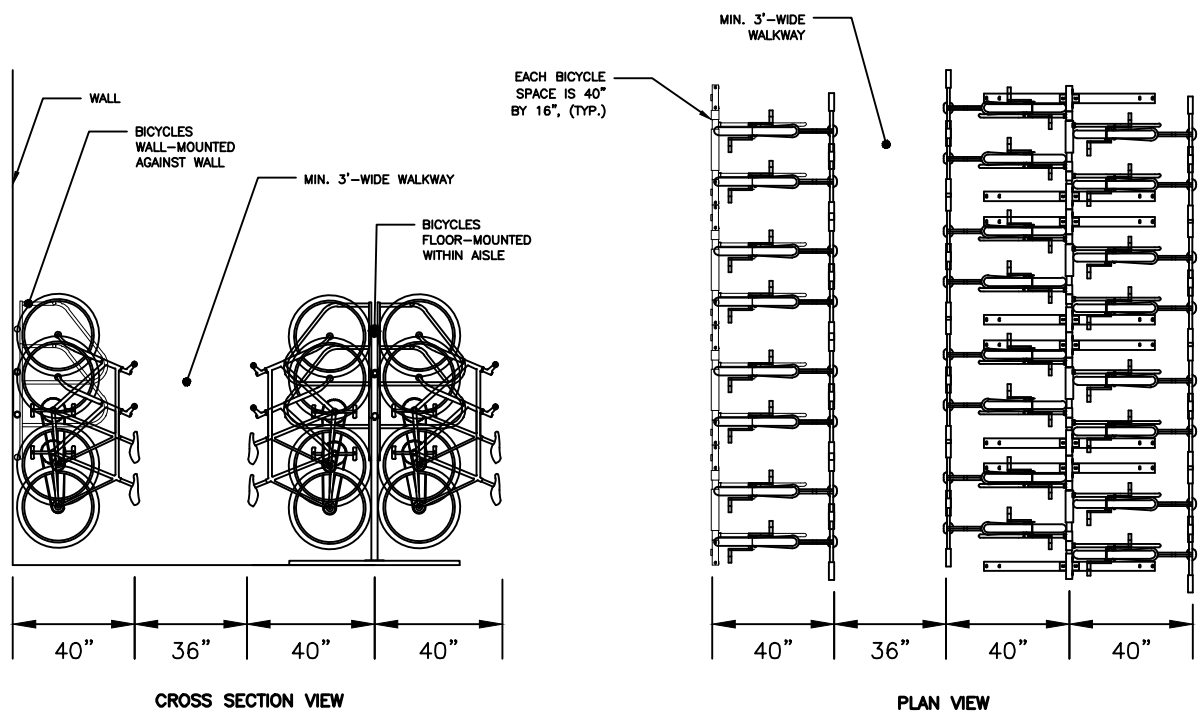
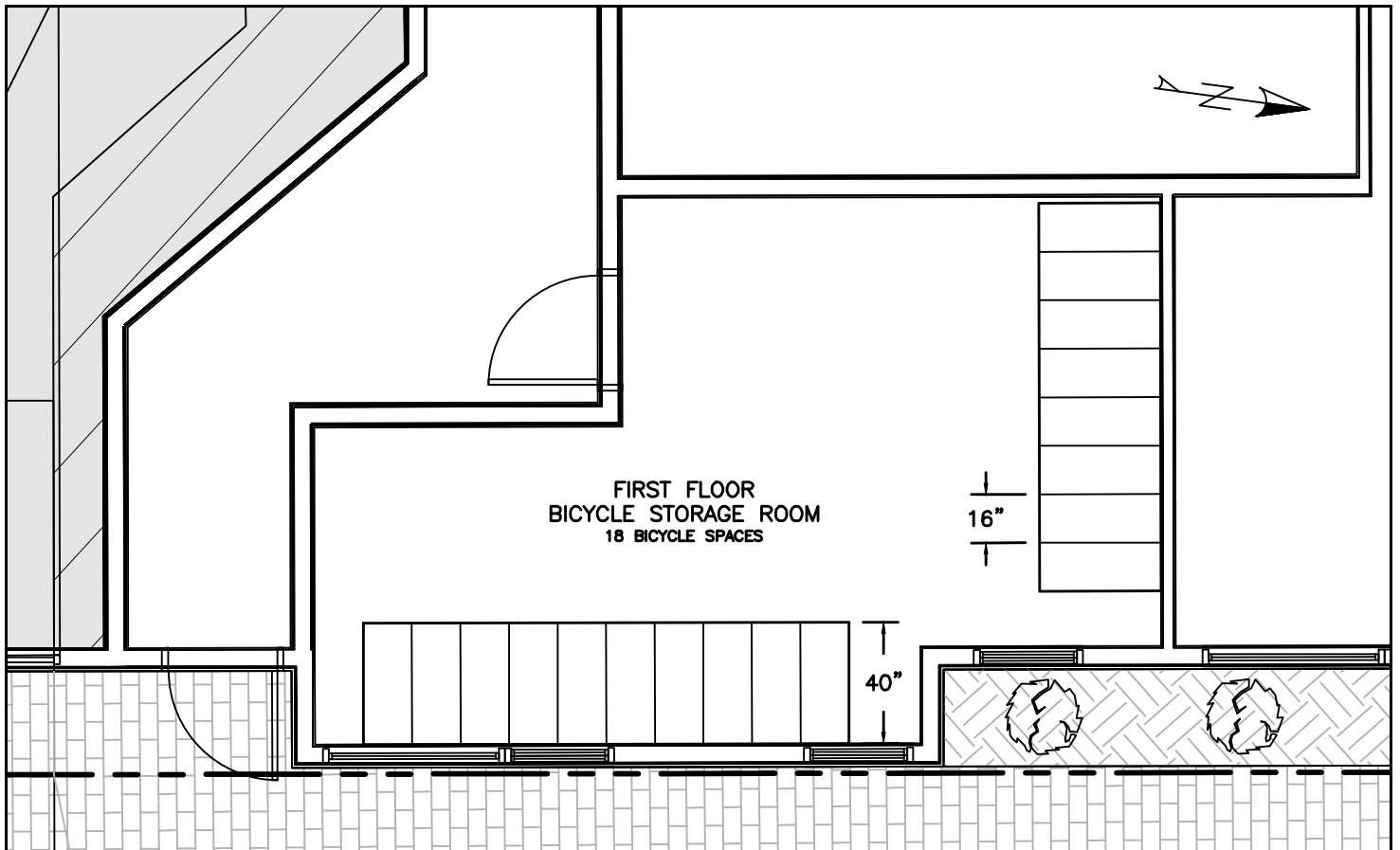
Multi-modal Context Map for 210 Valley Street



Attachment B

Bicycle Storage Exhibit





BICYCLE RACK INTERIOR

NOT TO SCALE

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE: 1127_CIVIL
DATE: 3/27/20
JN: 1127
SCALE: AS NOTED
DESIGN BY: SBL
DRAWN BY: KRB
CHECKED BY: WHS



ACORN ENGINEERING, INC. P.O. BOX 3372
PORTLAND, MAINE 04104 (207) 775-2655

DRAWING NAME:
BICYCLE STORAGE EXHIBIT

PROJECT NAME:
210 VALLEY ST REDEVELOPMENT

CLIENT:
AVESTA VALLEY STREET LP

ISSUED FOR	BY DATE

DRAWING NO.
EX-2

Attachment C

METRO Bus Route #1 and Schedule



METRO ROUTE 1 Congress Street MUNJOY HILL / MERCY AT THE FORE / PTC



MONDAY THROUGH FRIDAY OUTBOUND TO MUNJOY HILL

PTC	Monument Square	North St E. Prom
A	B	C
5:10	5:17	5:25
5:45	5:55	6:05
6:15	6:25	6:35
6:45	6:55	7:05
7:15	7:25	7:35
7:45	7:55	8:05
8:15	8:25	8:35
8:45	8:55	9:05
9:15	9:25	9:35
9:45	9:55	10:05
10:15	10:25	10:35
10:45	10:55	11:05
11:15	11:25	11:35
11:45	11:55	12:10
12:15	12:25	12:40
12:45	12:55	1:10
1:15	1:25	1:40
1:45	1:55	2:10
2:15	2:25	2:40
2:45	2:55	3:10
3:15	3:25	3:40
3:45	3:55	4:10
4:15	4:25	4:40
4:45	4:55	5:10
5:15	5:25	5:40
5:45	5:55	6:10
6:15	6:25	6:40
6:45	6:55	7:10
7:15	7:25	7:40
7:45	7:55	8:10
8:15	8:23	8:35
8:45	8:55	9:10
9:45	9:55	10:05
10:35	10:43	10:50

Route map and stops subject to change.

MONDAY THROUGH FRIDAY INBOUND TO PTC

North St E. Prom	Congress St North St	Library	METRO St. John St	PTC
C	D	B	M	A
5:25	5:28	5:33	5:40	5:45
6:10	6:15	6:20	6:32	6:40
6:40	6:45	6:50	7:02	7:10
7:10	7:15	7:20	7:32	7:40
7:40	7:45	7:50	8:02	8:10
8:10	8:15	8:20	8:32	8:40
8:40	8:45	8:50	9:02	9:10
9:10	9:15	9:20	9:32	9:40
9:40	9:45	9:50	10:02	10:10
10:10	10:15	10:20	10:32	10:40
10:40	10:45	10:50	11:02	11:10
11:10	11:15	11:20	11:32	11:40
11:40	11:45	11:50	12:02	12:10
12:10	12:15	12:20	12:32	12:40
12:40	12:45	12:50	1:02	1:10
1:10	1:15	1:20	1:32	1:40
1:40	1:45	1:50	2:02	2:15
2:10	2:15	2:20	2:32	2:45
2:40	2:45	2:50	3:02	3:15
3:10	3:15	3:20	3:32	3:45
3:40	3:45	3:50	4:02	4:15
4:10	4:15	4:20	4:32	4:45
4:40	4:45	4:50	5:02	5:15
5:10	5:15	5:20	5:32	5:45
5:40	5:45	5:50	6:02	6:15
6:10	6:15	6:20	6:32	6:40
6:40	6:45	6:50	7:02	7:10
7:10	7:15	7:20	7:32	7:40
7:40	7:45	7:50	8:02	8:10
8:10	8:15	8:20	8:32	8:40
8:35	8:40	8:45	9:00	X
9:10	9:15	9:20	9:32	9:40
10:05	10:10	10:15	10:25	10:35
10:50	10:55	11:00	11:10	X

PTC - Portland Transportation Center

SATURDAY OUTBOUND TO MUNJOY HILL

PTC	Monument Square	North St E. Prom
A	B	C
5:10	5:17	5:25
5:45	5:55	6:05
6:15	6:25	6:35
6:45	6:55	7:05
7:15	7:25	7:35
7:45	7:55	8:05
8:15	8:25	8:35
8:45	8:55	9:05
9:15	9:25	9:35
9:45	9:55	10:05
10:15	10:25	10:35
10:45	10:55	11:05
11:15	11:25	11:35
11:45	11:55	12:10
12:15	12:25	12:40
12:45	12:55	1:10
1:15	1:25	1:40
1:45	1:55	2:10
2:15	2:25	2:40
2:45	2:55	3:10
3:15	3:25	3:40
3:45	3:55	4:10
4:15	4:25	4:40
4:45	4:55	5:10
5:15	5:25	5:40
5:45	5:55	6:10
6:15	6:25	6:40
6:45	6:55	7:10
7:15	7:25	7:40
7:45	7:55	8:10
8:15	8:23	8:35
8:45	8:55	9:10
9:45	9:55	10:05
10:35	10:43	10:50

SUNDAY OUTBOUND TO MUNJOY HILL

PTC	Monument Square	North St E. Prom
A	B	C
7:45	7:55	8:05
8:45	8:55	9:05
9:45	9:55	10:05
10:45	10:55	11:05
11:45	11:55	12:05
12:45	12:55	1:05
1:45	1:55	2:05
2:45	2:55	3:05
3:45	3:55	4:05
4:45	4:55	5:05
5:45	5:55	6:05

SATURDAY INBOUND TO PTC

North St E. Prom	Congress St North St	Library	METRO St. John St	PTC
C	D	B	M	A
5:25	5:28	5:33	5:40	5:45
6:10	6:15	6:20	6:32	6:40
6:40	6:45	6:50	7:02	7:10
7:10	7:15	7:20	7:32	7:40
7:40	7:45	7:50	8:02	8:10
8:10	8:15	8:20	8:32	8:40
8:40	8:45	8:50	9:02	9:10
9:10	9:15	9:20	9:32	9:40
9:40	9:45	9:50	10:02	10:10
10:10	10:15	10:20	10:32	10:40
10:40	10:45	10:50	11:02	11:10
11:10	11:15	11:20	11:32	11:40
11:40	11:45	11:50	12:02	12:10
12:10	12:15	12:20	12:32	12:40
12:40	12:45	12:50	1:02	1:10
1:10	1:15	1:20	1:32	1:40
1:40	1:45	1:50	2:02	2:15
2:10	2:15	2:20	2:32	2:45
2:40	2:45	2:50	3:02	3:15
3:10	3:15	3:20	3:32	3:45
3:40	3:45	3:50	4:02	4:15
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7:10	7:15	7:20	7:32	7:40
7:40	7:45	7:50	8:02	8:10
8:10	8:15	8:20	8:32	8:40
8:35	8:40	8:45	9:00	X
9:10	9:15	9:20	9:32	9:40
10:05	10:10	10:15	10:25	10:35
10:50	10:55	11:00	11:10	X

SUNDAY INBOUND TO PTC

North St E. Prom	Congress St North St	Library	METRO St. John St	PTC
C	D	B	M	A
8:10	8:15	8:20	8:32	8:40
9:10	9:15	9:20	9:32	9:40
10:10	10:15	10:20	10:32	10:40
11:10	11:15	11:20	11:32	11:40
12:10	12:15	12:20	12:32	12:40
1:10	1:15	1:20	1:32	1:40
2:10	2:15	2:20	2:32	2:40
3:10	3:15	3:20	3:32	3:40
4:10	4:15	4:20	4:32	4:40
5:10	5:15	5:20	5:32	5:40
6:10	6:15	6:20	6:30	6:35

STORMWATER DRAINAGE SYSTEM MAINTENANCE AGREEMENT

IN CONSIDERATION OF the site plan approval granted by the Planning Board of the City of Portland to the proposed _____ located at _____, Portland, Maine and shown on the Site Plan recorded in the Cumberland County Registry of Deeds in Plan Book ___, Page ___ (the “Plan”) and associated Grading & Drainage Plan, dated _____ prepared by _____ of _____ (hereinafter, the “Premises”) and pursuant to a condition thereof, _____, a _____ with a principal place of business in Portland, Maine, and having a mailing address of _____, the owner of the Premises, does hereby agree, for itself, its successors and assigns (the “Owner”), as follows:

Maintenance Agreement

Owner, its successors and assigns, will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the (e.g. porous pavement, catch basins, storm drain pipes, and underdrain pipes) (hereinafter collectively referred to as the “stormwater system”) as shown on the Grading & Drainage Plan attached hereto as Exhibit B and in strict compliance with the approved Stormwater Inspection & Maintenance Plan and Stormwater Maintenance and Inspection Log, dated _____, copies attached as Exhibit A and C respectively and the annual inspection and reporting requirements of Chapter 32 of the Portland City Code.

Owner further agrees, at its own cost, to keep a Stormwater Maintenance and Inspection Log in the forms attached as Exhibit C. Such log shall be made available for inspection by the City of Portland upon reasonable notice and request.

This agreement is for the benefit of the City of Portland and all persons in lawful possession of the Premises and abutters thereto. The City of Portland and said persons in lawful possession may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice and a stated time to perform, the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon said Premises to maintain, repair, or replace said stormwater system, including but not limited to the porous pavement, catch basins, storm drain pipes, underdrain pipes, and other drainage structures thereon in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall not confer upon the City of Portland or any other person the right to utilize said stormwater system for public use or for the development of any other property. Except as may be required to comply with the terms of this Agreement, Owner shall bear no financial responsibility by virtue of this Agreement for enlarging the capacity of said system.

This Agreement shall also not be construed to allow any change or deviation from the requirements of the subdivision and/or site plan most recently and formally approved by the Planning Board of the City of Portland.

This agreement shall bind the undersigned only so long as it retains any interest in said Premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear.

The Owner shall record a copy of this Agreement in the Cumberland County Registry of Deeds within thirty (30) days of final execution of this Agreement. The Owner further agrees to provide a copy of this Agreement to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions and the successor or assign will obtain and forward to the City's Department of Public Works and Department of Planning and Urban Development a similar Addendum from any other successor or assign.

For the purpose of this agreement and release "Owner" is any person or entity who is a successor or assign and has a legal interest in part, or all, of the real estate and any building. The real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and lienied if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by the agreement shall be complete on the date the notice is attached to one or more doors providing entry to any buildings or residential units and mailed by certified mail, return receipt requested or ordinary mail or both to the owner of record as shown on the tax rolls on file in the City Assessor's Office.

If the property has more than one owner on the tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or lienied it or create a cause of action against the City.

[SIGNATURES ON FOLLOWING PAGE]

Dated at Portland, Maine this ____ day of _____, 2020.

[Owner]

STATE OF MAINE
CUMBERLAND, ss.

Name, title

Date: _____

Personally appeared the above-named _____, _____ of _____ and
acknowledged the foregoing instrument to be his/her free act and deed in his/her said capacity.

Before me,

Notary Public/Attorney at Law
Print name: _____

Exhibit A: Grading & Drainage Plan

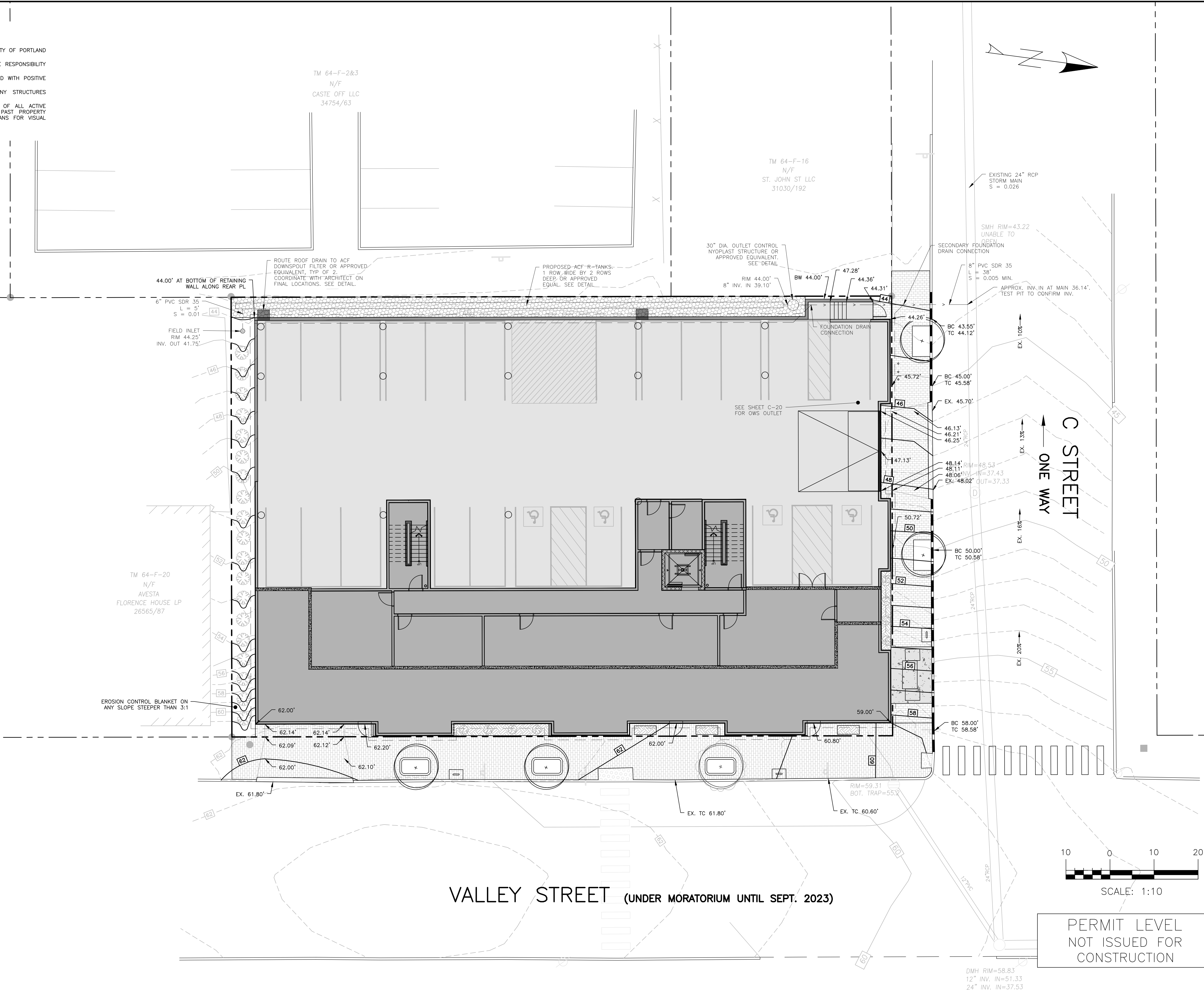
Exhibit B: Stormwater Inspection & Maintenance Plan

Exhibit C: Stormwater Maintenance and Inspection Log

GENERAL NOTES:

1. ALL WORK WITHIN THE CITY STREET RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
2. DESIGN OF TEMPORARY SOIL RESTRAINT MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IF NECESSARY FOR CONSTRUCTION.
3. CONTRACTOR SHALL ENSURE THAT UNDERDRAINS ARE CONSTRUCTED WITH POSITIVE OUTLET TO PROPOSED CONNECTIONS.
4. CATCH BASIN INLET PROTECTION TO BE INSTALLED WITHIN ANY STRUCTURES DOWNGRADEMENT OF ACTIVE CONSTRUCTION.
5. SEDIMENTATION BARRIERS ARE TO BE INSTALLED DOWNGRADEMENT OF ALL ACTIVE CONSTRUCTION WORK PER DETAIL. BARRIERS TO NOT EXTEND PAST PROPERTY LINES; BARRIERS SHOWN OFFSET FROM PROPERTY LINES ON PLANS FOR VISUAL PURPOSES ONLY.

AVERAGE GRADES AND BUILDING HEIGHT	
NORTHEAST CORNER ELEVATION	59.00'
SOUTHEAST CORNER ELEVATION	62.00'
SOUTHWEST CORNER ELEVATION	44.00'
NORTHWEST CORNER ELEVATION	44.26'
AVERAGE GRADE PLANE	52.32'
ELEVATION AT ROOF	119.50'
BUILDING HEIGHT	67.18'



ISSUED FOR	BY
SITE PLAN	WHS
	3/27/20
DRAWING NAME: GRADING & DRAINAGE PLAN - EXTERIOR	
PROJECT NAME: 210 VALLEY STREET REDEVELOPMENT	
CLIENT: AVESTA VALLEY STREET LP	
307 CUMBERLAND AVE, PORTLAND, ME 04101	
ACORN ENGINEERING, INC. ENGINEERING, INC.	
65 HANOVER ST, PORTLAND MAINE 04101	
(207) 775-2655	
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED BY THE ENGINEER, SHALL BE SHOWN ON THE PLAN WITH A REVISION NUMBER AND DATE.	
FILE:	1127_CIVIL
JN:	1127
SCALE:	AS NOTED
DESIGNED BY:	WHS
DRAWN BY:	KRB
CHECKED BY:	WHS
DRAWING NO. C-30	

1. ALL WORK WITHIN THE CITY STREET RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
2. DESIGN OF TEMPORARY SOIL RESTRAINT MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IF NECESSARY FOR CONSTRUCTION.
3. CONTRACTOR SHALL ENSURE THAT UNDERDRAINS ARE CONSTRUCTED WITH POSITIVE OUTLET TO PROPOSED CONNECTIONS.
4. CATCH BASIN INLET PROTECTION TO BE INSTALLED WITHIN ANY STRUCTURES DOWNDRAINAGE OF ACTIVE CONSTRUCTION.
5. SEDIMENTATION BARRIERS ARE TO BE INSTALLED DOWNDRAINAGE OF ALL ACTIVE CONSTRUCTION WITHIN THE CITY STREET RIGHT OF WAY TO NOT EXTEND PAST PROPERTY LINES; BARRIERS SHOWN OFFSET FROM PROPERTY LINES ON PLANS FOR VISUAL PURPOSES ONLY.

[illegible]

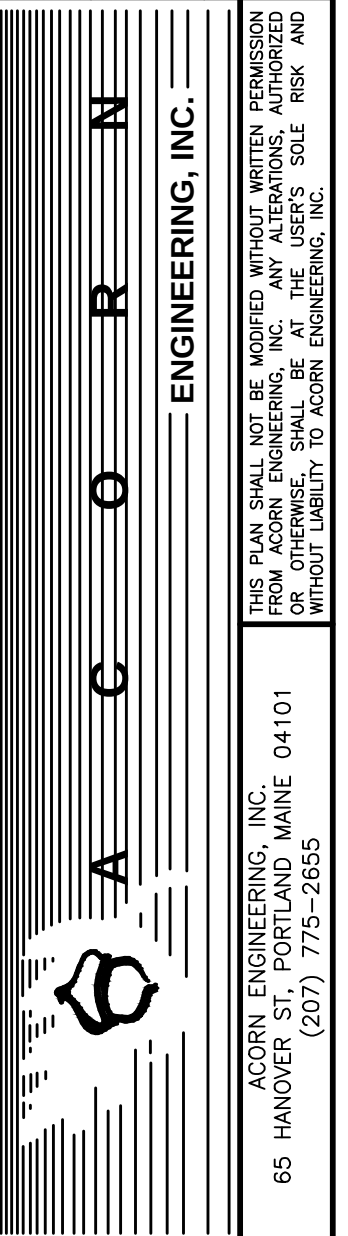
GRADING & DRAINAGE PLAN – INTERIOR

210 VALLEY STREET REDEVELOPMENT

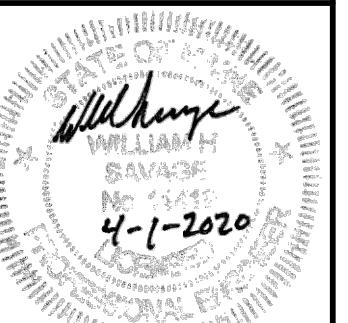
PROJECT NAME:

CLIENT:

AVESTA VALLEY STREET LP
307 CUMBERLAND AVE., PORTLAND, ME 04101

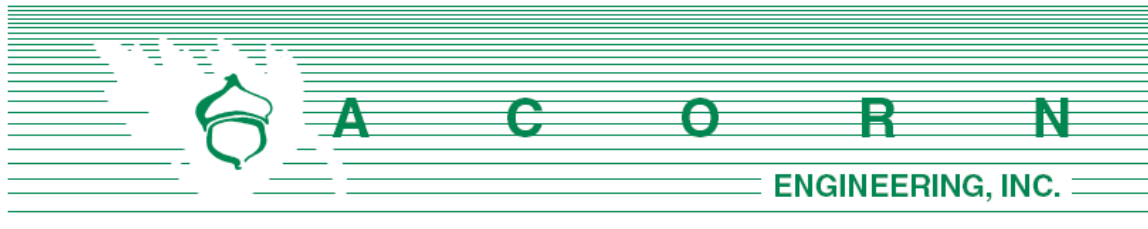


FILE:	1127_CIVIL
IN:	1127
SCALE:	AS NOTED
DESIGNED BY:	WHS
DRAWN BY:	KRB
CHECKED BY:	WHS



DRAWING NO.

C-31



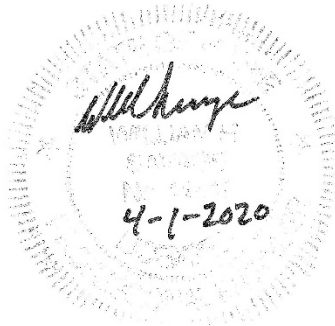
POST CONSTRUCTION - STORMWATER INSPECTION & MAINTENANCE PLAN

Prepared For:

**Avesta Valley Street, LP
307 Cumberland St.
Portland, Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
65 Hanover Street
Portland, Maine 04101**



April 2020

RESPONSIBLE PARTY

The owner, Avesta Valley Street, LP, and/or their successor shall be responsible for contracting with a Qualified Stormwater Professional (QSP) to implement the Inspection and Maintenance Plan for 210 Valley Street and is subject to the terms and conditions of the subdivision plat(s) recorded at the Cumberland County Registry of Deeds. The stormwater infrastructure requiring maintenance is located within the site, proposed public right-of-way, within stormwater easements on private property and open space lots. The QSP shall refer to the recorded plat(s) for the stormwater infrastructure locations. The QSP shall maintain a stormwater log (report) summarizing inspections, maintenance and corrective action taken. The QSP shall annually submit the Stormwater Log to the Department of Public Works prior to June 30th.

The following is an example of a Qualified Stormwater Professional that the association may contract through.

Organization: Will Savage, PE
Acorn Engineering, Inc
Portland, Maine

Phone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert. #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert. #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The inspection and maintenance criteria are based upon the Maine DEP - Stormwater Management for Maine, Volume III: BMPs Technical Design Manual. Refer to the attached Grading and Drainage Plan for the location of the BMPs.

PURPOSE

This Inspection and Maintenance Plan has been individually tailored to this parcel's stormwater infrastructure, site characteristics, and their respective opportunities and limitations related to reducing the pollutant load on the receiving watershed. The maintenance of a parcel's impervious surfaces and stormwater infrastructure is critical to extending the long-term performance and effectiveness of Best Management Practices (BMPs). The Inspection and Maintenance Plan represents the parcel's minimum activities to meet the permit requirements. The parcel shall still be subject to any applicable Civil Site Plans, Permit Applications, Erosion and Sedimentation Control Plans Reports, Stormwater Management Plans, Inspection and Maintenance Manuals, and all Municipal, State, and Federal rules.

INSPECTION AND MAINTENANCE ACTIVITY

Downspout Filter:

The maintenance for the Fabco StormBasin DownSpout filter shall be in accordance with the attached manufacturer's specifications. Additionally, the downstream drainage manholes shall be inspected to confirm the structures are operating properly.

- Downspout filters shall be inspected quarterly for the presence of accumulated sediment that shall be removed. Legally dispose of accumulated sediment and debris.
- Filters should generally be replaced annually.

Subsurface Tanks/Detention System:

- Inspect for the presence of accumulated sediment or debris that shall be removed. Blow or remove debris from stone surface and if significant material is found within the chambers, it should be removed utilizing the inspection port. The equipment shall meet the following minimum specifications; power jet and water source for washing down the chambers, vacuum attachment for cleaning and a liquid handling method to dewater the material.
- Appropriately dispose of all collected materials.

Structures:

The outlet control structure (OCS) and field inlet shall be inspected biannually to ensure that outlets are clear of sediment and debris. Ensure that the orifice(s) and overflow are not obstructed from trash and debris within the OCS.

INSPECTION AND MAINTENANCE TABLE

Inspection and Maintenance Frequency	Spring or Yearly	Summer	Fall	As Necessary
Downspout Filter/Roof Drains	X	X	X	X
Chamber/Stone Detention System		X		X



Stormwater Control BMP Inspection Log

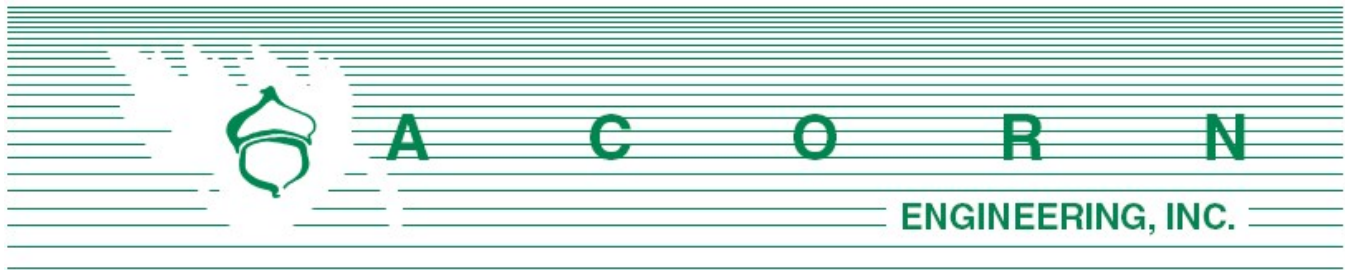
DOWNSPOUT FILTERS:							
Location:				Latitude:			
				Longitude:			
Description of Located Point:				Inspector:			
				Date of Inspection:			
				Weather Conditions:			
DOT Region:				Design Drawings:			
MATS Asset Number:		WIN:					
Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Downspout Filters							
Filters are working properly and are free of debris and sediment	☐	☐	☒	☐ Yes ☐ No ☐ N/A			
General							
Access to facility is adequate	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☐	☒	☐				Photographs are attached.
Additional Comments:							

Stormwater Control BMP Inspection Log

FIELD INLETS / FLOOR DRAINS:							
Location:				Latitude:			
				Longitude:			
Description of Located Point:				Inspector:			
				Date of Inspection:			
				Weather Conditions:			
DOT Region:							
MATS Asset Number:		WIN:		Design Drawings:			
Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Field Inlets and Floor Drains							
Inlets are working properly and are free of debris and sediment	☐	☐	☒	☐ Yes ☐ No ☐ N/A			
Inter-structure storm drain is functioning properly and free of sediment and debris.	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
General							
Access to facility is adequate	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☐	☒	☐				Photographs are attached.
Additional Comments:							

Stormwater Control BMP Inspection Log

STORMWATER DETENTION SYSTEM:							
Location:					Latitude:		
					Longitude:		
Description of Located Point:					Inspector:		
					Date of Inspection:		
					Weather Conditions:		
DOT Region:							
MATS Asset Number:		WIN:			Design Drawings:		
Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Stormwater Detention Culvert System							
Swales are generally in good condition, and show no signs of erosion.	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Swales are free of accumulated sediment, debris and trash	☐	☐	☒	☐ Yes ☐ No ☐ N/A			
Outlet Control Structure							
Control structure is free of excess sediment and floatables	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Outlet control structure drains within 24-48 hours	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
General							
Access to facility is adequate	☐	☒	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☐	☒	☐				Photographs are attached.
Additional Comments:							



Planning Division
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

June 1, 2020

Subject: 210 Valley Street Neighborhood Meeting

I, Will Savage, hereby certify that a neighborhood meeting was held on May 28, 2020 remote via Zoom at 6:00 pm.

I also certify that on May 15, 2020, invitations were mailed to the following:

1. All addresses on the mailing list provided by the Planning Division which includes property owners within 500 feet of the proposed development.
2. Residents on the “interested parties” list.

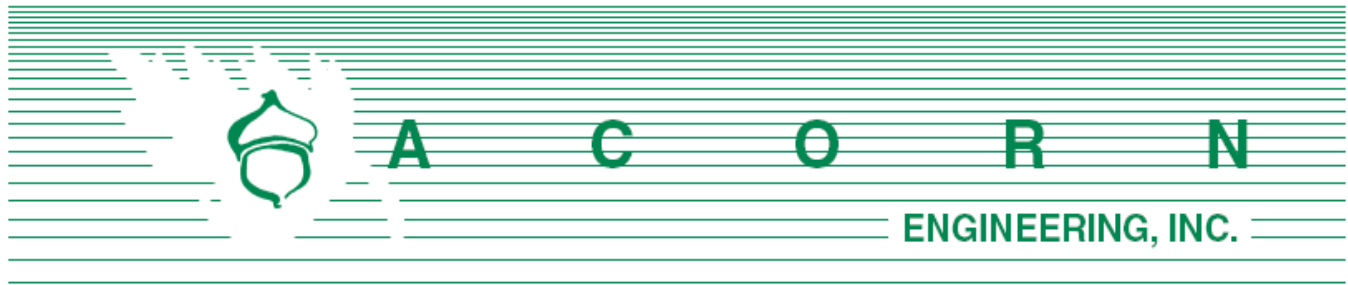
Sincerely,

A handwritten signature in black ink, appearing to read 'Will Savage', is written over a light blue horizontal line.

William H. Savage, P.E.
Principal - Project Manager
Acorn Engineering, Inc.

Included with this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes



Dear Neighbor:

May 15, 2020

On behalf of Avesta Valley Street LP, we are pleased to invite you to a neighborhood meeting to discuss the proposed project at 210 Valley St within the B2 Zoning District. The project includes the construction of a 5-story, 60-unit apartment building with 2 levels of covered parking. The proposal seeks to replace existing surface parking and a 2-unit structure with affordable housing in proximity to public transportation, goods, and services. Additionally, the public sidewalk along the project frontage will be rebuilt with amenities such as bicycle hitches and street trees.

Meeting Location: This meeting will **be held remotely via Zoom** according to state and local requirements around social distancing and will be available for public viewing and participation. **Please email admin@acorn-engineering.com to request a link or phone number to join the meeting.** You may also call the office line (listed below) to request this information.

Meeting Date/Time: **Thursday, May 28, 2020 at 6:00 pm**

The City code requires that property owners within 500 feet of the proposed development and residents on an “interested parties list” be invited to participate in a neighborhood meeting. Both a sign-in sheet and meeting minutes will be submitted to the Planning Board. The meeting is anticipated to be run similarly to previous in-person neighborhood meetings, and the project team will give an overview of the process at the beginning of the meeting. If you have any questions, please don’t hesitate to call me at (207) 775-2655. We look forward to seeing you at the meeting.

Sincerely,

A handwritten signature in black ink, appearing to read 'Will Savage'.

William H. Savage, P.E.
Acorn Engineering, Inc.



Sign In Sheet

5/28/2020

210 Valley Street Portland, ME 04102

Members of the Public in Attendance:

NAME

E-MAIL

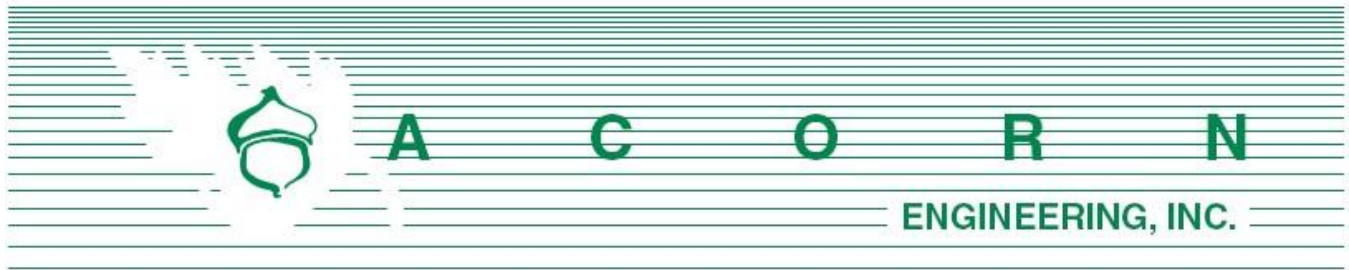
- | | | |
|----|-------------------------------|--------------------------|
| 1. | Dan Chase | dpchase26@gmail.com |
| 2. | George Rheault - West Bayside | george.rheault@gmail.com |

Developer and Consultant Team in Attendance:

NAME

E-MAIL

- | | | |
|----|-------------------|-------------------------------|
| 1. | Catherine Elliott | CElliott@AvestaHousing.org |
| 2. | Rebecca Hatfield | rhatfield@avestahousing.org |
| 3. | Hollie Sprague | hsprague@avestahousing.org |
| 4. | Will Savage | wsavage@acorn-engineering.com |
| 5. | Sam Lebel | slebel@acorn-engineering.com |
| 6. | Ryan Senatore | ryan@senatorearchitecture.com |



210 Valley Street Redevelopment Level III Site Plan/Subdivision Application

Neighborhood Meeting Minutes

May 28, 2020 / 6:00 pm
Remote meeting via Zoom

Project Team Attendees:

Catherine Elliott (CE): Developer/Presenter – (Avesta Housing)
Hollie Sprague (HS): Property Manager – (Avesta Housing)
Rebecca Hatfield (RH): Developer – (Avesta Housing)
Will Savage (WS): Civil Engineer/Presenter (Acorn Engineering)
Sam Lebel (SL): Civil Engineer/Note Taker (Acorn Engineering)
Ryan Senatore (RS): Architect/Presenter (Ryan Senatore Architecture)

Meeting scheduled for 6:00 pm and started at approximately 6:05 pm.

Presentation:

Catherine Elliott:

- Developer and Project Manager
- Avesta has been considering development in this area for a while, about a year ago Avesta got that opportunity.
- The project is a 60 unit residential building with parking and other amenities included. We are working with Acorn (Engineer) and Ryan Senatore (Architect).
- This meeting is part of the planning board approval process, we have met with the city multiple times and hope to secure approval on this project sometime this summer.
- Sign In sheet is available for everyone which will become public record along with the meeting minutes.

Will Savage:

- Introduction
 - o Neighborhood Meeting is a City requirement for a Level III Application
- Overview of project location and vicinity.
- The site is zoned as B-2 and is approximately 15,000sf in size.
- Overview of grading/slopes in the vicinity. 18' of grade change from front to rear of lot.
- The project proposes a 5-story, 60-unit building w/ two levels of covered parking (21 spaces on the basement level with an entrance from C Street and 19 spaces on the first level with an entrance from Valley Street).
 - o Increase affordable housing stock
 - o Tie front façade into existing streetscape.
 - o Rebuild sidewalk along frontage
 - o Plant street trees
 - o Proposed bicycle hitches
- The utilities were designed in accordance with the respective utility companies' requirements. All services will be tied into C Street, as Valley Street is under moratorium until 2023.
 - o Underground electric will serve the redevelopment
 - o Proposed a 6" fire line and 4" domestic water line. The building will be sprinkled.
 - o Sewer to the municipal system in C Street
 - o Gas to the municipal system in C Street
- Replacing existing site which is built of impervious area and grass with the proposed building. Roof runoff will have water quality treatment before it discharges to C Street separated storm system
- Grades – Site slopes to the rear and the design of the building work with the grades providing for two garage entrances.
- Pre-application meeting with the City was held on 2/26/2020
- Planning Board Workshop is tentatively scheduled 6/23/20 and all are welcome to come to that as well.

Ryan Senatore:

- Overview of basement and first floor
 - o 2 levels of Parking and circulation works with the existing grades
 - o 2 egress stairs and elevator with apartments on both sides of corridor on upper levels.
- Incorporated 1-Br, 2-Br, 3-Br, and studio apartments for a diverse mix
 - o ADA accessible units and units that can be transitioned into ADA units
- Similar floor plan as you move up the building (floors 2-5)
 - o Bay bump outs included to scale the building and give visual interest.
- Overview of exterior of building and elements incorporated to tie building into streetscape.



- Materials
- Large windows
- Contrast of colors
- Landscape features

Will Savage:

- Presentation concluded and now open for questions.

Comments, Questions & Answers:

Please note that the following questions and answers were not recorded verbatim and aim to represent and summarize the actual questions, answers, and discussion that took place at the meeting. Q or C denotes Question or Comment from the Public.

C: Security on open garage levels could be a concern

Q: Has the City required a traffic or pedestrian study?

WS: Parking analysis as part of the site plan application submitted, under review, and anticipate comments prior to June 23.

Q: Auxiliary traffic coming and going to building? Delivery trucks or visitors – is there enough space

Q: C Street driveway could be tough to get into – could you make this a 2 way again?

WS: We can look into this with the City.

C: Could be a fair amount of foot traffic on St John St. Should be a neighborhood study on traffic and pedestrian flow.

Q: Feedback from DPW about C Street's history? It's wide and doesn't make sense to be one-way unless part of a master plan. Could be police mandated? Suggest looking into making C street two-way.

Q: Have the Florence House calls been analyzed?

HS: No records on hand – most calls are medical related

Q: Even though there's a large increase in housing, was there an attempt to save the existing building? Could you acquire additional land, redesign the building, and save the existing building?



CE: We are finding a large demand for diverse housing which we're trying to meet. We don't take building demolitions lightly, but this was the best plan we came up with with the land we have.

C: This building could work elsewhere too. If you waited longer, you might be able to save the existing building.

Q: Why aren't you excavating all the way to Valley St to get storage units or more parking?

RS: We studied that, but due to existing topography, it would require a lot of shoring along Valley St for no gain in parking.

Q: Are you maxing out on the building height?

WS: We are at 67' vs the 70' limit.

Q: Could you ask for a rezone to increase height?

CE: This building with 60 units hits our criteria for the funding paths so we did not consider a rezone.

RS: Increasing the height would also create a different building type driving costs.

Q: You can't go 6 or 7 stories with parking below?

WS: You can generally have 4 stories above the parking.

Q: Will there be a privacy issue with the "C" shape of the building? Will people be looking into each other's units?

RS: There's about 25' between and windows will have privacy screens available to each resident, so I don't foresee any issues.

Q: Air conditioning?

RS: Working through HVAC in the budget.

Q: Will there be audio conflicts?

WS: That comes down to management.

Q: Could you eliminate the gap in the building?

RS: you would lose 8-10 units because of light, ventilation, etc.



Q: Garage openings: winter can be challenging. Openings are for ventilation, but is there anything to help avoid shoveling or wiping windshields

RS: We've done this before, and the design eliminates a lot of the snow drift. 50% openings allow us to stay away from large ventilation systems.

Q: Would residents have to leave the garage for clearing during a snowstorm?

RS: No, they would not.

C: C Street has not been one way for very long. It was a neighborhood decision.

WS: Could have been put into place for more on-street parking, but we can ask the City.

Q: You're not doing anything to the C Street intersection right?

WS: Correct, rebuilding the sidewalks only.

C: You may be able to address some of the intersection steepness with your street work.

Meeting concluded at approximately 7:00 pm.

The abovementioned material was as interpreted and recorded from handwritten notes. Please note and relay any discrepancies or disputed information in the recorded minutes to the below address so that they can be reviewed, revised, and resubmitted as necessary.

Recorded by,



Sam Lebel, E.I.
Project Engineer
Acorn Engineering, Inc.
slebel@acorn-engineering.com



June 16, 2020

Caitlin Cameron
Urban Designer
City of Portland
389 Congress Street
Portland, ME 04101

RE: Design Review Response Letter - Valley Street Apartments, Portland, ME

Dear Caitlin,

Please see the attached revised drawing package and responses to the Design Review comments in your June 9, 2020 letter.

- 1.) We have revised the Vinyl siding to a LP Smart Side lap siding product with a 5" exposure in response to your comment. We would like to keep the 3 elevations at the rear internal courtyard as vinyl siding with a matching 5" exposure. The tile we will use for the building base will be a porcelain tile with a non-porous surface so it will be easily cleanable if graffiti is placed on it.
- 2.) We have added a roof screen on the Valley Street facing side of the mechanical units to screen them from the uphill views from the Western Promenade. As you can see the units are not visible from the street level in the attached rendering package.
- 3.) We have revised the perimeter chainlink fence to a 6' tall stockade fence per the comments.
- 4.) We have reviewed the request to add windows on the C Street elevation and feel that the elevation already has a generous amount of glazing thus would like to keep the glazing quantity as proposed.

Sincerely,



Ryan Senatore, AIA LEED-AP
Ryan Senatore Architecture, LLC , Principal

June 16, 2020

Date

207-650-6414

senatorearchitecture.com

ryan@senatorearchitecture.com

500 Congress St. Suite 2
Portland, Maine 04101



1. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ALL EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE ANY POTENTIAL CONFLICTS WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES SHOWN ON THE PLAN. IF DEEMED NECESSARY BY THE OWNER OR OWNER'S REPRESENTATIVE, ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR SHALL PREPARE THEIR OWN MATERIAL SCHEDULE BASED ON THE PLANS AND FIELD VERIFICATION BY THE CONTRACTOR. ALL MATERIAL SCHEDULES SHOWN WITHIN THE PLAN SET ARE FOR GENERAL INFORMATION ONLY.
4. ALL CONSTRUCTION METHODS, TESTING AND MATERIALS SHALL CONFORM TO THE MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, THE CITY OF PORTLAND AND SERVICING UTILITY REQUIREMENTS, IF ANY. IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SPECIFICATION SHALL APPLY AT NO ADDITIONAL COST TO THE OWNER.
5. THE SITE CONTRACTOR SHALL MAINTAIN A SET OF PAPER AND CAD DRAWINGS WHICH SHALL RECORD THE ACTUAL LOCATION, DIMENSIONS, ELEVATIONS, MATERIALS OF THEIR WORK, INDICATING THEREON ALL VARIATIONS FROM THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH ONE COMPLETE SET OF REPRODUCIBLE RECORD DRAWINGS, IN AUTOCAD FORMAT AND PAPER, STAMPED "AS-BUILT". IF AUTOCAD NOT AVAILABLE EXCLUDE FROM BID IN WRITING.
6. THE CONTRACTOR WILL REMAIN SOLELY AND COMPLETELY RESPONSIBLE FOR ENFORCEMENT OF AND COMPLIANCE WITH 1) ALL CONTRACT PLANS AND SPECIFICATIONS, 2) APPLICABLE INTERNATIONAL BUILDING CODE REQUIREMENTS, AND 3) ALL SITE WORKING CONDITIONS AND SAFETY REQUIREMENTS, DAY AND NIGHT, FOR BOTH PERSONS AND PROPERTY, IN EACH CASE BOTH BY THE CONTRACTOR AND ITS SUBCONTRACTORS. THESE INCLUDE ALL OSHA, NIOSH, U.S. EPA AND ANY OTHER APPLICABLE GOVERNMENTAL REGULATIONS.
7. EXISTING CONDITIONS, BOUNDARY SURVEY, AND TOPOGRAPHY FROM THE PLAN TITLED "ALTA / NSPS LAND TITLE SURVEY 204 & 210 VALLEY STREET AND 6 C STREET PORTLAND, CUMBERLAND COUNTY, MAINE" JOB NO. 2019-159P) BY OWEN HASKELL, INC. DATED 07/2019.
8. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO THE SITE AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN A SAFE VEHICLE AND PEDESTRIAN ACCESS THROUGH THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE PORTLAND PUBLIC SAFETY DIVISION ROUTINELY REGARDING TEMPORARY IMPACTS OR CHANGES TO SITE ACCESS CONDITIONS.
9. CONSTRUCTION MANAGEMENT PLAN BY ACORN ENGINEERING SHALL BE REFERRED TO FOR ANTICIPATED PROJECT SCHEDULE AND CLOSURES. TRAFFIC CONTROL SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR TO DETERMINE SOIL CLASSIFICATION INDEPENDENTLY FOR TRENCH, SHORING, AND OTHER SIMILAR CONSTRUCTION MEANS AND METHODS APPLICATIONS.
11. NO HOLES, TRENCHES, OR STRUCTURES SHALL BE LEFT OPEN OR UNATTENDED OVERNIGHT IN ANY AREA ACCESSIBLE TO THE PUBLIC OR WITHIN THE PUBLIC RIGHT-OF-WAY.
12. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION SURVEY OF INTERIOR SUBGRADE AND ABOVE GRADE ACCESSIBLE WALLS, CEILINGS, FLOORS, ROOF AND VISIBLE EXTERIOR AS VIEWED FROM THE GRADE LEVEL FOR STRUCTURES ON ADJACENT PROPERTIES. DOCUMENT WITH PICTURES AT A MINIMUM.
13. THE CONTRACTOR SHALL SURVEY ROCK SURFACE PRIOR TO EXCAVATION AND DEVELOP VOLUME CALCULATIONS TO SHARE WITH ACORN ENGINEERING, IF ANY.

CIVIL SITE NOTES:

1. THE CONTRACTOR SHALL SUBMIT IN WRITING ANY REQUESTS TO MODIFY THE CONTRACT DOCUMENTS.
2. ALL SHOP AND ERECTION DRAWINGS SHALL BE CHECKED AND STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMISSION FOR ENGINEER'S REVIEW. ANY UNCHECKED OR NON-STAMPED SUBMITTALS WILL BE RETURNED WITHOUT REVIEW.
3. CONTRACTOR SHALL THOROUGHLY INSPECT AND SURVEY EXISTING STRUCTURES AND SITE TO VERIFY CONDITIONS THAT AFFECT THE WORK SHOWN ON THE DRAWINGS. CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING.
4. DETAILS SHOWN APPLY TO ALL SIMILAR CONDITIONS UNLESS OTHERWISE INDICATED.
5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST GEOTECHNICAL REPORT PREPARED BY THE PROJECT GEOTECHNICAL ENGINEER.
6. ALTHOUGH ALL DUE DILIGENCE HAS BEEN APPLIED TO MAKE THE DRAWINGS AS COMPLETE AS POSSIBLE, NOT ALL DETAILS ARE ILLUSTRATED, NOR IS EVERY EXCEPTIONAL CONDITION ADDRESSED WITHIN THE CONTRACT DOCUMENTS.
7. ALL PROPRIETARY CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
8. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL WORK, INCLUDING DIMENSION AND LAYOUT VERIFICATION, MATERIALS COORDINATION, SHOP DRAWING REVIEW, AND THE WORK OF ANY SUBCONTRACTORS.
9. UNLESS OTHERWISE SPECIFICALLY INDICATED, THE DRAWINGS DO NOT DESCRIBE OR DIRECT MEANS OR METHODS OF CONSTRUCTION.
10. THE CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PERFORM OR SUPERVISE ALL WORK NECESSARY TO ACHIEVE THE FINAL COMPLETED STRUCTURE, AND TO PROTECT THE STRUCTURE, WORKMEN, AND OTHERS DURING THE CONSTRUCTION. SUCH WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR EXCAVATION, FORMWORK, SCAFFOLDING, SAFETY DEVICES AND PROGRAMS OF ALL KINDS, SUPPORT AND BRACING FOR CRANES AND OTHER ERECTION EQUIPMENT.
11. DO NOT BACKFILL AGAINST RETAINING WALLS UNTIL SUPPORTING SLABS AND FLOOR FRAMING ARE IN PLACE AND SECURELY ANCHORED, UNLESS ADEQUATE BRACING IS PROVIDED. CONCRETE SHALL ALSO BE CURED FOR 28 DAYS PRIOR TO BACKFILLING.
12. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOFS AND OTHER SUPPORTING ELEMENTS ARE IN PLACE.
13. ALL PAVEMENT JOINTS SHALL BE SAWCUT AND APPLIED WITH TACK COAT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
14. THE ENGINEER BEARS NO RESPONSIBILITY FOR THE ABOVE ITEMS, AND OBSERVATION VISITS TO THE SITE DO NOT IN ANY WAY INCLUDE INSPECTION OF THEM.
15. ALL PAVING SHALL BE COMPLETED BETWEEN APR. 15 AND NOV. 15 AND MEET MIN TEMP. REQUIREMENTS SET FORTH BY MDOT.

1. ALL SITE SOILS--RELATED WORK AND FOOTING EXCAVATIONS SHALL BE REVIEWED BY GEOTECHNICAL ENGINEER PRIOR TO PLACING FORMS.
2. STORMWATER INSPECTIONS TO BE CONDUCTED BY SITE ENGINEER (ACORN ENGINEERING).
3. NORMAL REVIEWS WILL BE CONDUCTED BY LOCAL BUILDING DEPARTMENT.
4. REQUIRED SPECIAL INSPECTIONS PER I.B.C. SECTION 1705.6 BY AN APPROVED SPECIAL INSPECTOR RETAINED BY OWNER. CONTRACTOR TO COORDINATE SPECIAL INSPECTIONS.
5. SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
6. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR SHALL BE TO OBSERVE AND/OR TEST THE WORK ASSIGNED AND OUTLINED ABOVE FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS, ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.
7. THE SPECIAL INSPECTOR SHALL FURNISH REGULAR REPORTS TO THE BUILDING OFFICIAL, THE ARCHITECT AND ENGINEER OF RECORD, AND OWNER DESIGNED PERSONS. REPORTS FOR CONTINUOUS INSPECTION SHALL BE FURNISHED WEEKLY. INDIVIDUAL REPORTS OF PERIODIC INSPECTIONS SHALL BE FURNISHED WITHIN ONE WEEK OF INSPECTION DATES. THE REPORTS SHALL NOTE UNCORRECTED DEFICIENCIES, AND CHANGES TO THE APPROVED CONSTRUCTION DOCUMENTS AUTHORIZED BY THE ENGINEER OF RECORD.

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED UPON RECORDS OF VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO TEST PIT TO DETERMINE THE EXACT LOCATION AND ELEVATION OF UTILITIES TO COORDINATE WITH THE PROPOSED CONNECTIONS OR CROSSING. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE CIVIL ENGINEER FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
2. CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, CONDUCT EXPLORATORY EXCAVATIONS AT LOCATIONS WHERE PROPOSED EXCAVATION WILL INTERSECT WITH EXISTING UTILITIES, PRIOR TO THE ORDERING OF STRUCTURES.
3. ALL NEW SANITARY MANHOLES SHALL BE VACUUM TESTED BEFORE BACKFILLING. TESTING SHALL BE COMPLETED IN ACCORDANCE WITH TECHNICAL REPORT #16 (TR-16): GUIDES FOR THE DESIGN OF WASTEWATER TREATMENT WORKS, PREPARED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION.
4. SEWER MANHOLES SHALL BE 4' ID UNLESS OTHERWISE STATED ON THE PLANS.

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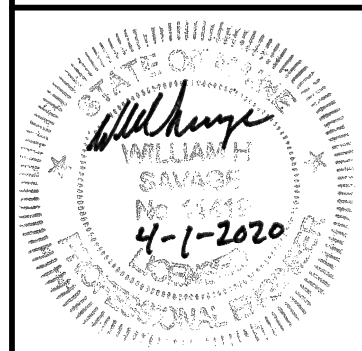
DRAWING NAME:	GENERAL NOTES
PROJECT NAME:	210 VALLEY STREET REDEVELOPMENT
CLIENT:	AVESTA VALLEY STREET LP 307 CUMBERLAND AVE, PORTLAND, ME 04101



ACORN

ENGINEERING, INC.

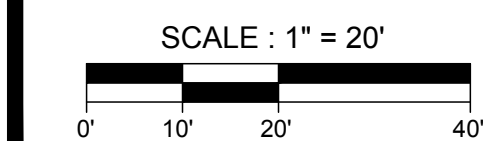
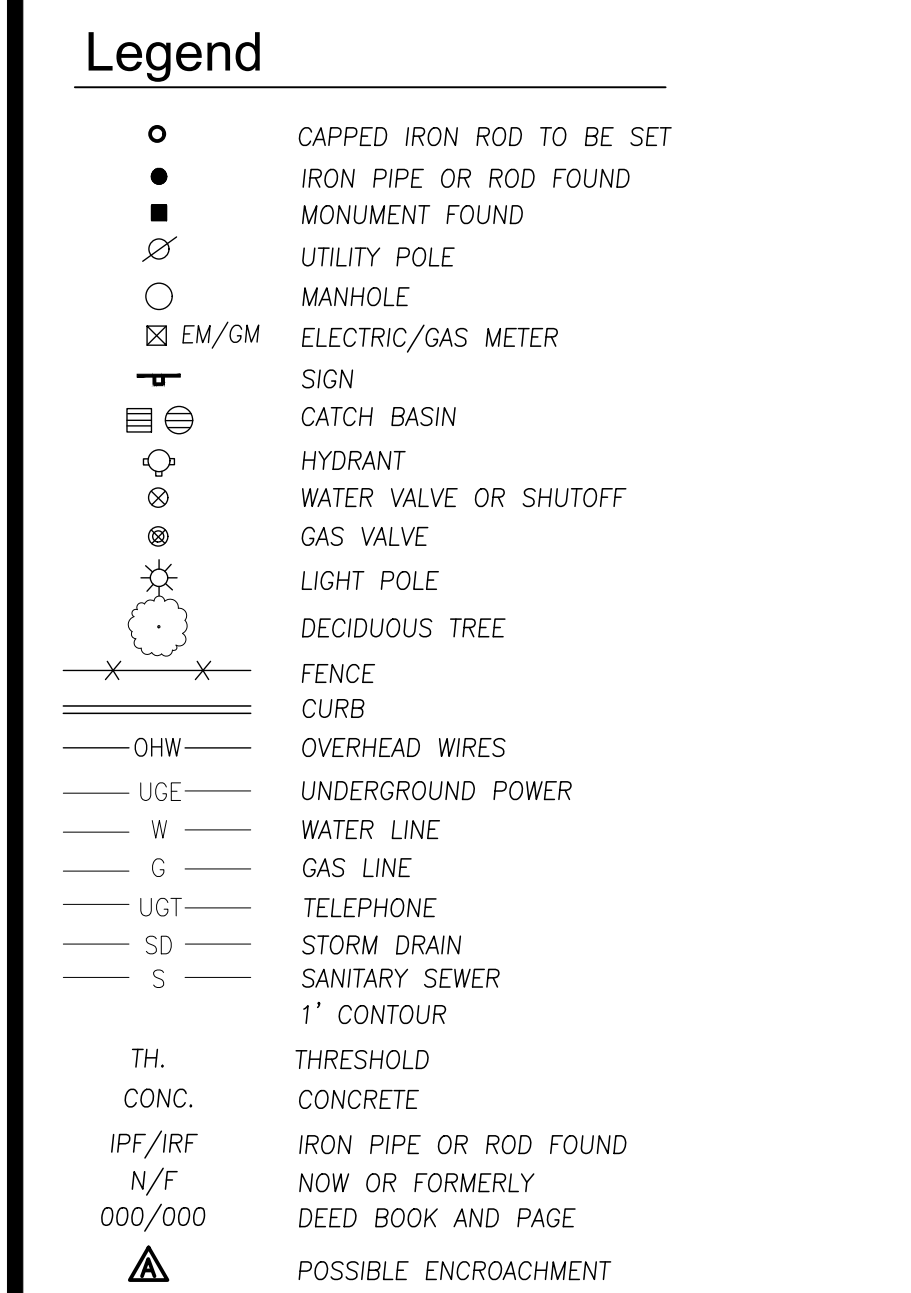
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DESIGNED BY:	SJL
DRAWN BY:	KRB
CHECKED BY:	WHS



DRAWING NO.

C-02

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION



SURVEY COMPLETED WITHOUT THE BENEFIT OF A TITLE COMMITMENT.

NONE PROVIDED

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED HEREON. IT IS THE CERTAIN THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR DOES NOT KNOW OF ANY OTHER LOCATED UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS LOCATED IN ZONE C, AREAS OF MINIMAL FLOODING, ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051 0013B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 6(A), 11, 13, 14, 16, 17, 19 AND 21 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED IN JUNE, 2019.

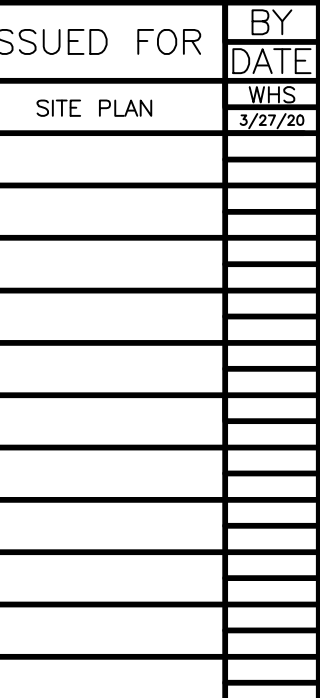


STATE OF MAINE
RANDY
R.
LOUBIER
2407
PROFESSIONAL
LAND SURVEYOR

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO. 2019-159 P
CHECKED BY: RRL	SCALE: 1" = 20'	DRWG. NO. 1

5. THE DEED DESCRIPTION FOR TAX MAP 64-F-8&9 RECORDED IN 27010/287 CALLS FOR A DEPTH OF 101.85 FEET ON THE SOUTHERLY LINE AND A DEPTH OF 101.61 FEET OF THE NORTHERLY LINE. USING THESE DIMENSIONS CREATES AN OVERLAP WITH DEED DESCRIPTION FOR TAX MAP 64-F-2&3 RECORDED IN 34754/63. A DISTANCE OF 100 FEET WAS HELD FROM ST. JOHN STREET TO RECREATE THE REAR LINE SINCE THESE LOTS WERE SUBDIVIDED FIRST AS SHOWN ON PLAN REFERENCE 4.

1. EXISTING ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
2. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" TO DEMONSTRATE PROPER DISPOSAL OF ALL WASTE.
3. SITE DEMOLITION SHALL NOT OCCUR UNTIL PROPER ABATEMENT PROCEDURES HAVE OCCURRED. ABATEMENT, IF NECESSARY, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO EXCAVATION TO REQUEST INFORMATION REGARDING WHERE IT SHOULD BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE POTENTIAL CONFLICT WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
5. ALL CONSTRUCTION SIGNAGE IS TEMPORARY AND WILL BE REMOVED AT PROJECT COMPLETION. FINAL SIGNAGE WORDING AND PLACEMENT SHALL BE AS ACCEPTED BY THE CITY.
6. SEDIMENT BARRIERS TO BE PLACED DIRECTLY ON THE FRONT AND SIDE PROPERTY LINES, DOWN GRADIENT OF THE PROPOSED PROJECT WORK PER DETAIL; FENCES ARE OFFSET OF THE PROPERTY LINES AS SHOWN ON THE PLAN.
7. FURTHER PROTECTION SHALL BE PROVIDED TO ALL EXISTING UTILITIES AND STRUCTURES.
8. CONTRACTOR SHALL PLACE CATCH BASIN INLET PROTECTION ON CATCH BASINS AND FIELD INLETS DOWN-GRADIENT OF ALL NON-STABILIZED SURFACES, PER DETAIL.
9. DEMOLITION PLAN IS NOT INCLUSIVE OF ALL EXISTING ITEMS TO BE REMOVED AS PART OF SITE CONSTRUCTION. CONTRACTOR SHALL NOT REMOVE EXISTING UTILITIES WORK WITHIN THE ROW, ETC. ALL DEMOLITION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF PORTLAND REGULATIONS.
10. CONTRACTOR TO BE RESPONSIBLE FOR PROVIDING OFF-SITE PARKING TO EMPLOYEES; ON-SITE PARKING WILL NOT BE PROVIDED OR CONSIDERED. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE APPROPRIATE PERMITS FROM THE CITY FOR CLOSING ANY ON-STREET PARKING SPACES DURING THE CONSTRUCTION PERIOD.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR SNOW REMOVAL ALONG CONSTRUCTION FENCE AND GATE.



AVESIA VALLET STREET LP
307 CUMBERLAND AVE, PORTLAND, ME 04101

ACORN ENGINEERING, INC.
65 HANOVER ST., PORTLAND MAINE 04101
(207) 775-2655

STATE OF MAINE
 WILLIAM H. SAVAGE
 No. 1448
 4-1-2020
 PROFESSIONAL ENGINEER

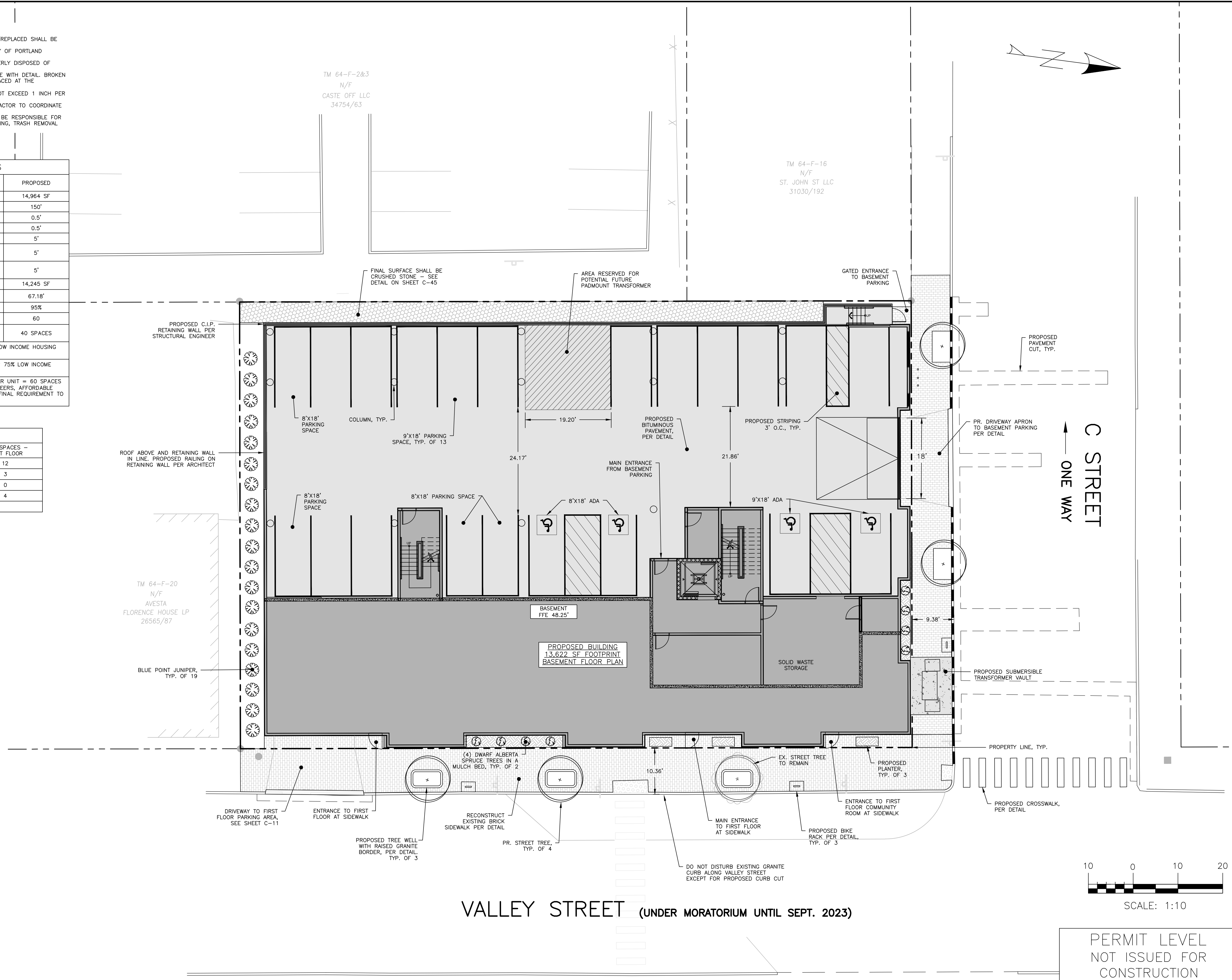
C-03

1. ALL BRICK SIDEWALK AND VERTICAL GRANITE CURB TO BE SET/REPLACED SHALL BE REBUILT TO CITY OF PORTLAND STANDARD.
2. ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF PORTLAND STANDARDS.
3. ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
4. CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL RAMPS TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
6. ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
7. FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.

SPACE AND BULK STANDARDS		
ZONE: B--2	REQUIRED	PROPOSED
MINIMUM LOT SIZE	NONE	14,964 SF
MINIMUM STREET FRONTAGE	20'	150'
MAXIMUM FRONT YARD SETBACK	NONE	0.5'
MINIMUM SIDE YARD SETBACK	NONE	0.5'
MINIMUM REAR YARD SETBACK	0' *	5'
STRUCTURE STEPBACKS (SIDE YARD ABOVE 35')	NONE (ABUTS B2)	5'
STRUCTURE STEPBACKS (REAR YARD ABOVE 35')	NONE (ABUTS B2)	5'
MAXIMUM LOT COVERAGE	NONE	14,245 SF
MAXIMUM BUILDING HEIGHT	70' **	67.18'
MAXIMUM IMPERVIOUS AREA	NONE	95%
MAXIMUM NUMBER OF DWELLING UNITS	NA	60
PARKING	60 SPACES ***	40 SPACES

* 10' REAR SETBACK (B-2 ZONING) IS REDUCED TO 0' PER 75% LOW INCOME HOUSING BONUS (DIV. 30, SEC. 14-48B)
** 45' MAXIMUM BUILDING (B-2 ZONING) IS INCREASED TO 70' PER 75% LOW INCOME HOUSING BONUS (DIV. 30, SEC. 14-48B)
*** PER CITY ORDINANCE, STANDARD REQUIREMENT OF 1 SPACE PER UNIT = 60 SPACES (DIV. 20, SEC. 14-322) PER INSTITUTIONAL TRANSPORTATION ENGINEERS, AFFORDABLE HOUSING REQUIREMENT OF 0.55 SPACES PER UNIT = 33 SPACES. FINAL REQUIREMENT TO BE DETERMINED BY PLANNING BOARD (DIV. 20, SEC. 14-332.2).

PARKING TABLE		
	# OF SPACES – BASEMENT LEVEL	# OF SPACES – FIRST FLOOR
STANDARD (9'X18')	13	12
COMPACT (8'X18')	4	3
ADA (9'X18')	2	0
ADA (8'X18')	2	4
TOTAL PROPOSED SPACES		40

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SITE PLAN – BASEMENT LEVEL

210 VALLEY STREET REDEVELOPMENT

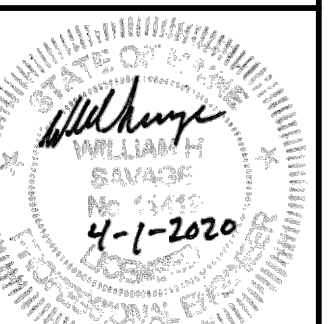
PROJECT NAME:

CLIENT:

AVESTA VALLEY STREET LP
307 CUMBERLAND AVE., PORTLAND, ME 04101

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION
 AGCON ENGINEERING, INC. 65 HANOVER ST., PORTLAND, MAINE 04101
 (207) 775-2855
 AGCON ENGINEERING, INC. 65 HANOVER ST., PORTLAND, MAINE 04101
 (207) 775-2855

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SCALE:	AS NOTED
DESIGNED BY:	WHS
DRAWN BY:	KRB
CHECKED BY:	WHS



DRAWING NO.

C-10

GENERAL NOTES:

1. ALL BRICK SIDEWALK AND VERTICAL GRANITE CURB TO BE SET/REPLACED SHALL BE REBUILT TO CITY OF PORTLAND STANDARD.
2. ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF PORTLAND STANDARDS.
3. ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
4. CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL RAMP TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
6. ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
7. FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.

SPACE AND BULK STANDARDS		
ZONE: B-2	REQUIRED	PROPOSED
MINIMUM LOT SIZE	NONE	14,964 SF
MINIMUM STREET FRONTAGE	20'	150'
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MINIMUM SIDE YARD SETBACK	NONE	0.5'
MINIMUM REAR YARD SETBACK	0' *	5'
STRUCTURE STEPBACKS (SIDE YARD ABOVE 35')	NONE (ABUTS B2)	5'
STRUCTURE STEPBACKS (REAR YARD ABOVE 35')	NONE (ABUTS B2)	5'
MAXIMUM LOT COVERAGE	NONE	14,245 SF
MAXIMUM BUILDING HEIGHT	70' **	67.18'
MAXIMUM IMPERVIOUS AREA	NONE	95%
MAXIMUM NUMBER OF DWELLING UNITS	NA	60
PARKING	60 SPACES ***	40 SPACES
* 10' REAR SETBACK (B-2 ZONING) IS REDUCED TO 0' PER 75% LOW INCOME HOUSING BONUS (DIV. 30, SEC. 14-488)		
** 45' MAXIMUM BUILDING (B-2 ZONING) IS INCREASED TO 70' PER 75% LOW INCOME HOUSING BONUS (DIV. 30, SEC. 14-488)		
*** PER CITY ORDINANCE, STANDARD REQUIREMENT OF 1 SPACE PER UNIT = 60 SPACES (DIV. 20, SEC. 14-322), PER INSTITUTE OF TRANSPORTATION ENGINEERS, AFFORDABLE HOUSING REQUIREMENT OF 0.55 SPACES PER UNIT = 33 SPACES. FINAL REQUIREMENT TO BE DETERMINED BY PLANNING BOARD (DIV. 20, SEC. 14-332.2).		

PARKING TABLE		
	# OF SPACES - BASEMENT LEVEL	# OF SPACES - FIRST FLOOR
STANDARD (9'X18')	13	12
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ADA (9'X18')	2	0
ADA (8'X18')	2	4
TOTAL PROPOSED SPACES	40	

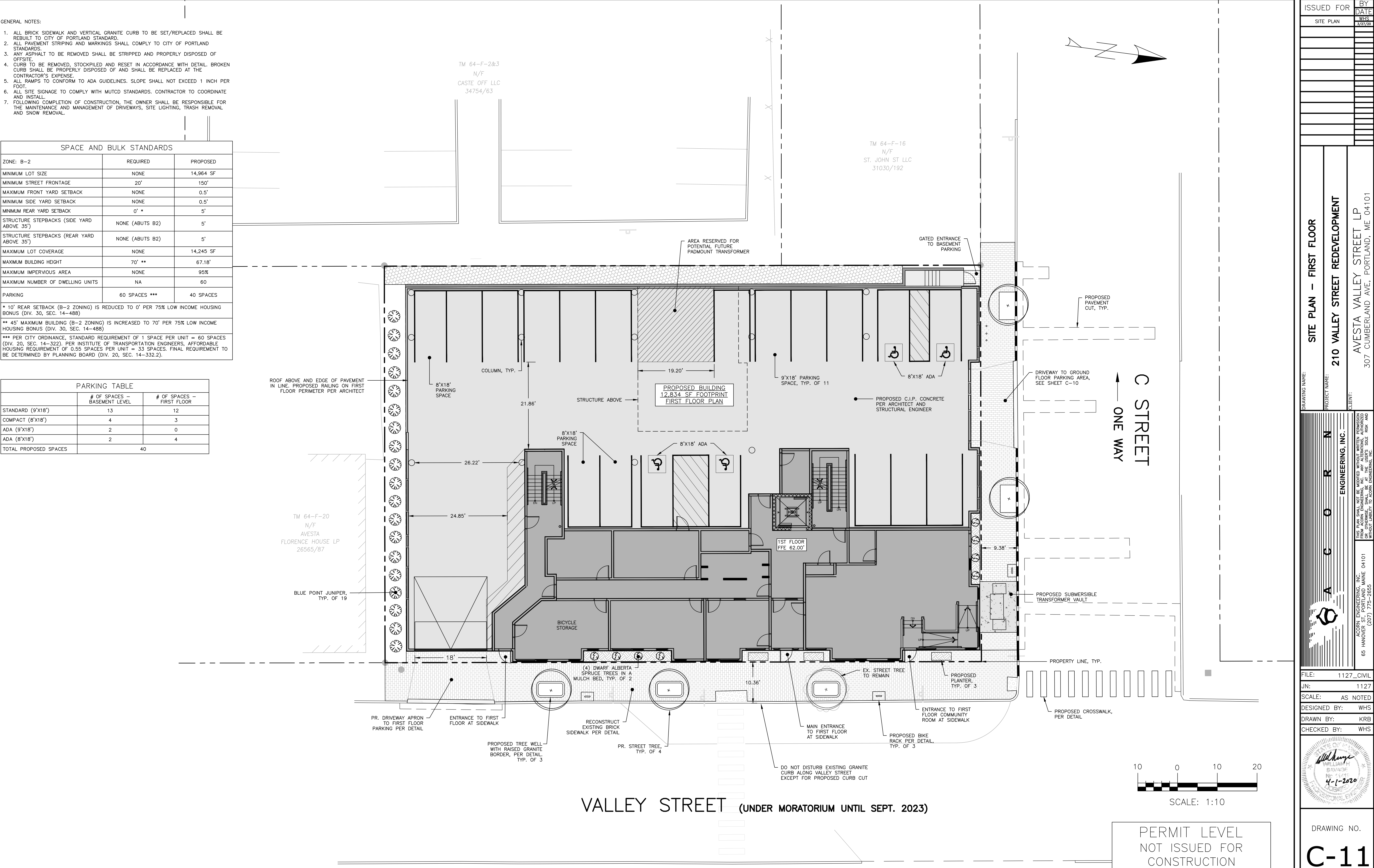
ROOF ABOVE AND EDGE OF PAVEMENT IN LINE, PROPOSED RAILING ON FIRST FLOOR PERIMETER PER ARCHITECT

TM 64-F-20
N/F
AVESTA HOUSE LP
26565/87

BLUE POINT JUNIPER,
TYP. OF 19

TM 64-F-2&3
N/F
CASTE OFF LLC
34754/63

TM 64-F-16
N/F
ST. JOHN ST LLC
31030/192



VALLEY STREET (UNDER MORATORIUM UNTIL SEPT. 2023)



PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR

BY

DATE

SITE PLAN

WHS

3/27/20

SITE PLAN - FIRST FLOOR

PROJECT NAME:

210 VALLEY STREET REDEVELOPMENT

CLIENT:

AVESTA VALLEY STREET LP

307 CUMBERLAND AVE, PORTLAND, ME 04101

ACORN ENGINEERING, INC.

ENGINEERING, INC.

65 HANOVER ST, PORTLAND MAINE 04101

(207) 775-2655

FILE:

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JN:

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SCALE:

AS NOTED

DESIGNED BY:

WHS

DRAWN BY:

KRB

CHECKED BY:

WHS

STATE OF MAINE

PROFESSIONAL ENGINEER

WILLIAM SAVAGE

4-1-2020

DRAWING NO.

C-11

1. LOCATION OF PROPOSED CONNECTIONS ARE APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.

2. CONTRACTOR IS TO BE CAUTIONED THAT CERTAIN LOCATIONS AND/OR ELEVATIONS OF EXISTING UTILITIES HAVE BEEN PROVIDED THROUGH UTILITY COORDINATION OR OTHER OBSERVATIONS. INFORMATION IS NOT TO BE RELIED UPON AS EXACT OR COMPLETE. CONTRACTOR IS TO BE RESPONSIBLE TO RECONNOITER AND COORDINATE WITH UTILITY COMPANIES AND DIG SAFE NO LESS THAN 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS INDICATED IN THE CONTRACT DOCUMENTS. CONTRACTOR TO NOTIFY ENGINEER OF ANY DIFFERENTIATIONS FROM EXISTING CONDITIONS, INCLUDING UTILITY INFORMATION, PRIOR TO ANY CHANGES.

3. FOR ALL UTILITIES, ACORN ENGINEERING DESIGN LIMITS END AT EXTERIOR WALL OF BUILDING. METERING OF UTILITIES TO BE COMPLETED BY M.E.P. UNLESS SPECIFIED OTHERWISE.

4. CONTRACTOR TO COORDINATE WITH ARCHITECT ON FINAL UTILITY CONNECTIONS WITHIN THE BUILDING.

5. **SEWER UTILITIES:** CONTRACTOR TO COORDINATE WITH ARCHITECT FOR FINAL SERVICE CONNECTION. SEWER UTILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF PORTLAND TECHNICAL STANDARDS. VALVE FOR BACKFLOW PREVENTION SHALL BE INSTALLED WITHIN THE PROPERTY LINES FOR EACH CITY SEWER CONNECTION. CONTRACT ENGINEER INVERT FIELD CONDITIONS VARY FROM DESIGN.

6. **WATER UTILITIES:** FINAL PIPE SIZING PROVIDED FOR M.E.P. ENGINEER AND FIRE PROTECTION DESIGNER. INTERNAL METERING, BACKFLOW PREVENTION, AND PRESSURE REDUCERS TO BE COMPLETED BY M.E.P. ENGINEER. DOMESTIC WATER PIPE SIZES WILL DETERMINE THE FINAL METERING OPTIONS. METER MAY BE SMALLER THAN PROPOSED WATER MAIN, WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT STANDARDS. CONTRACTOR TO FOLLOW METERING GUIDELINES OF THE PORTLAND WATER DISTRICT AND CITY OF PORTLAND.

7. **GAS UTILITIES:** PROJECT GAS LOAD, GAS UTILITY DESIGN, AND FINAL GAS SERVICE LOCATION AND METERS TO BE DEFINED BY M.E.P. AND GAS ENGINEER.

8. **ELECTRIC UTILITIES:** ELECTRIC DESIGN TO BE FINALIZED BY M.E.P. ENGINEER. ELECTRICAL LOAD TO BE DETERMINED BY M.E.P. ENGINEER. METER LOCATION AND TRANSFORMER SIZE, IF NECESSARY DEFINED BY M.E.P. M.P. TO FINALIZE SERVICE CONNECTION TO BUILDING. ALL ELECTRIC CONNECTION SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION. DESIGN SUBJECT TO FINAL APPROVAL FROM CMP.

9. **CABLE AND TELEPHONE UTILITIES:** FINAL UTILITY LOCATIONS TO BE DETERMINED BY CHARTER COMMUNICATIONS AND CONSOLIDATED COMMUNICATIONS TO CONSTRUCTION. CONTRACTOR TO COORDINATE INSTALLATION OF UNDERGROUND UTILITIES WITH ALL UTILITY COMPANIES INVOLVED.

*PERMISSIBLE ONLY IF SEWER IS LAID MIN. 18" BELOW WATER SERVICE;
OTHERWISE, 10' OF HORIZONTAL SEPARATION MUST BE MAINTAINED.



PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

DRAWING NAME:	UTILITY PLAN
PROJECT NAME:	210 VALLEY STREET REDEVELOPMENT
CLIENT:	AVESTA VALLEY STREET LP 307 CUMBERLAND AVE, PORTLAND, ME 04101



ACORN ENGINEERING, INC.

65 HANOVER ST., PORTLAND, MAINE 04101

(207) 775-2855

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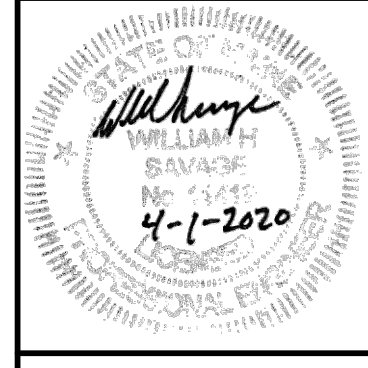
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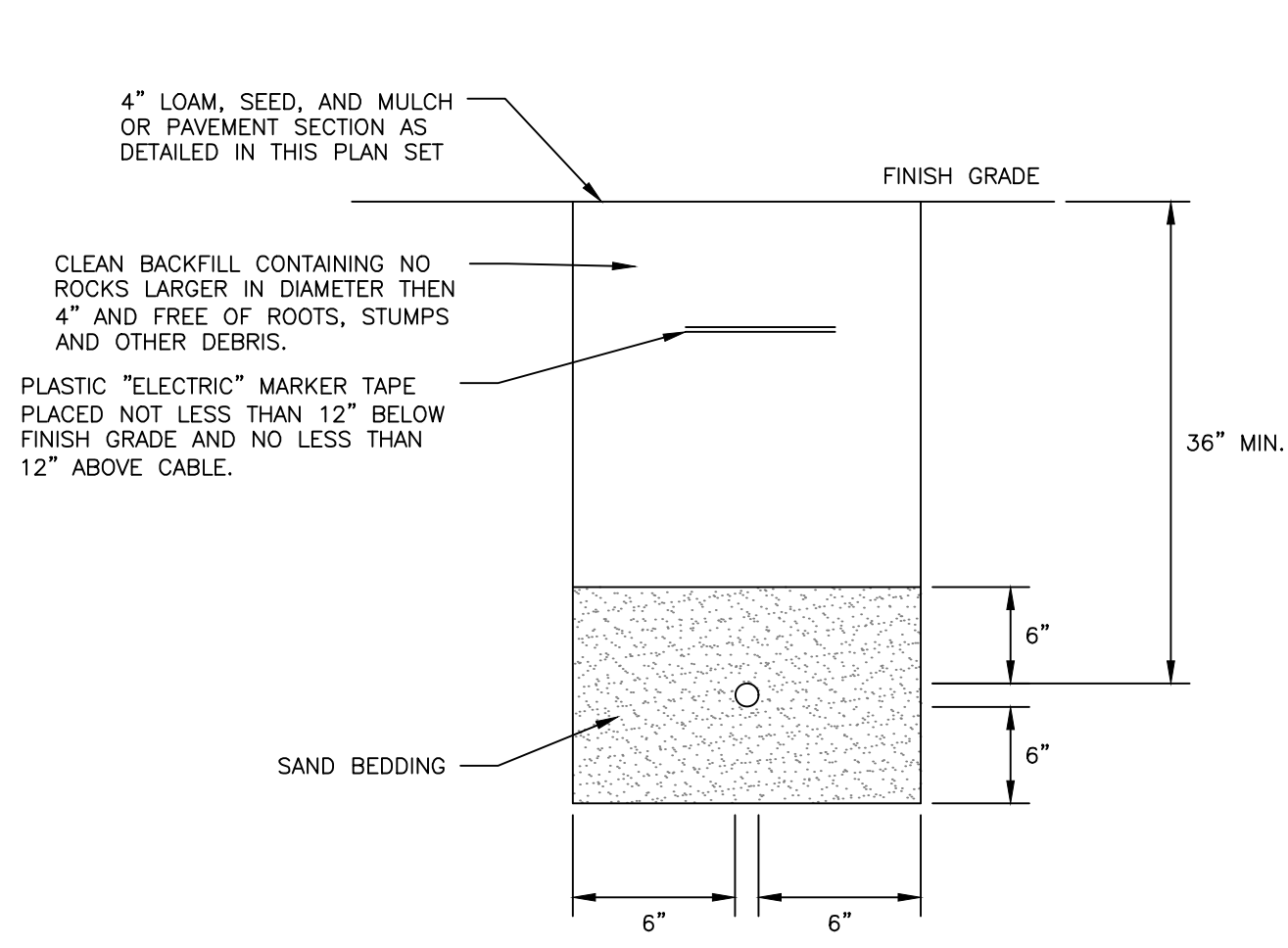
ENGINEERING, INC.

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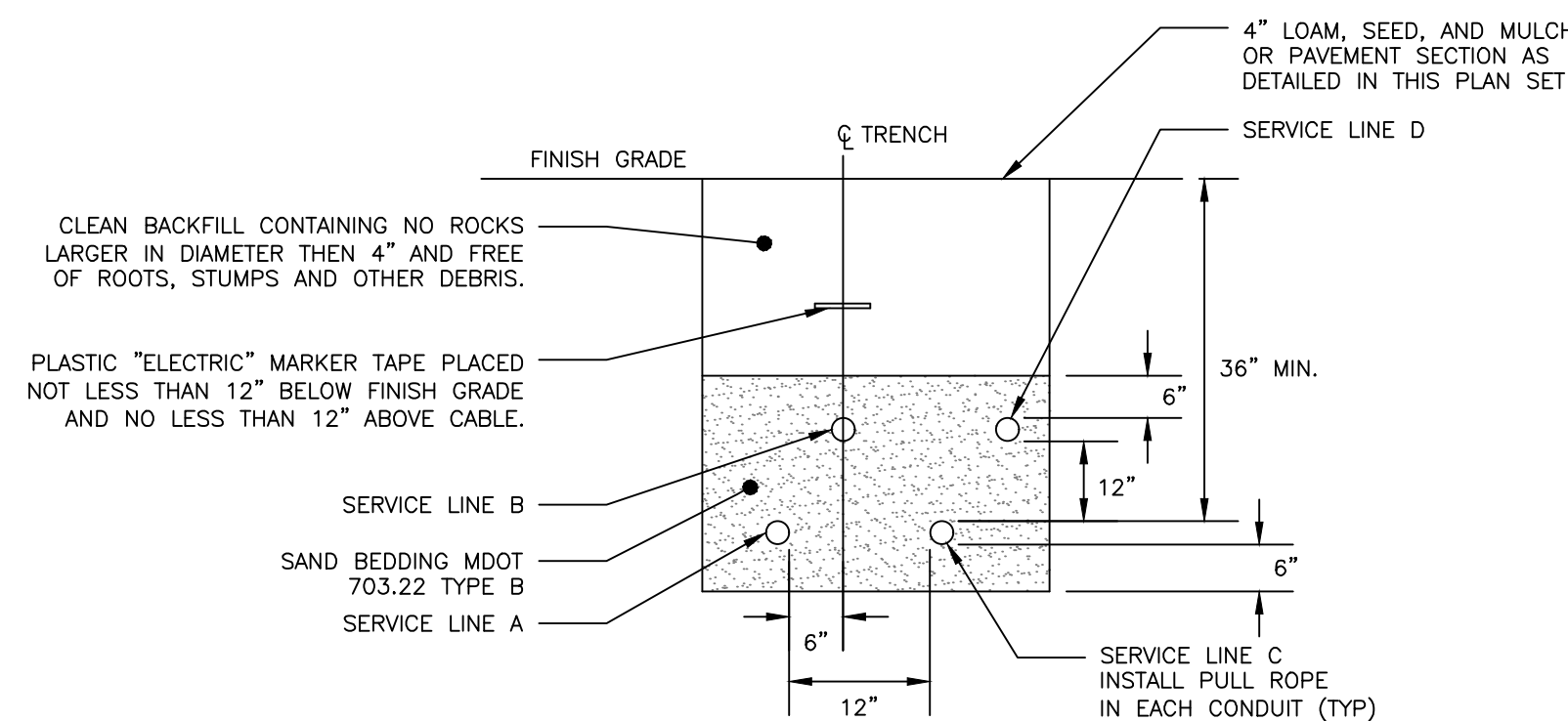
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SECONDARY ELECTRICAL TRENCH
NOT TO SCALE

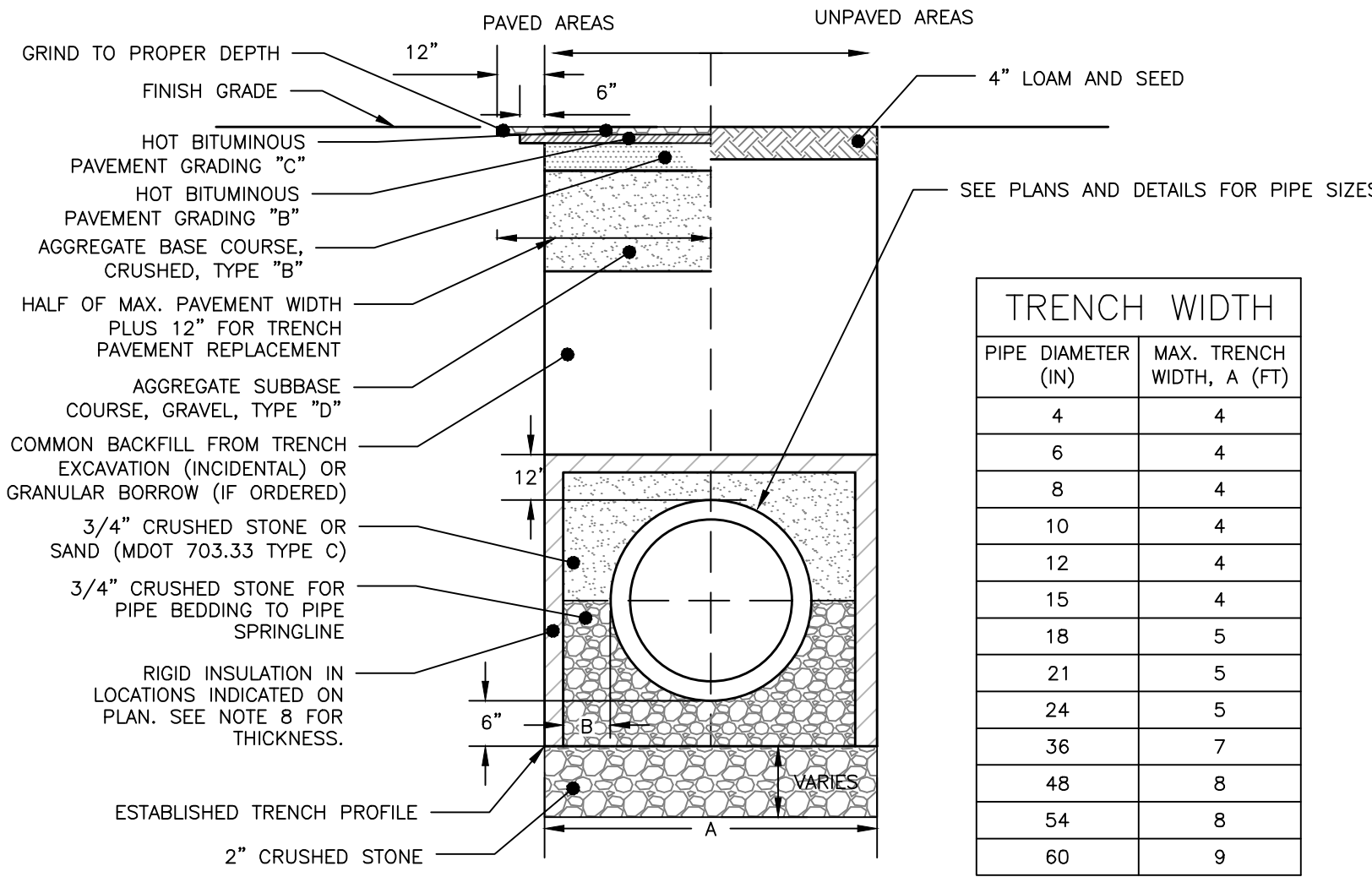


CONDUIT TYPE				
SERVICE	CONDUIT SIZE	GRASS AND PAVED AREAS	UTILITY	REMARKS
A	2-5"	SCHEDULE 40 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE 1
B	2-4"	SCHEDULE 40 PVC	COMMUNICATION	-
C	2-4"	SCHEDULE 40 PVC ELECTRICAL GRADE	SPARE	IF REQUIRED
D	2-4"	SCHEDULE 40 PVC	CABLE	-

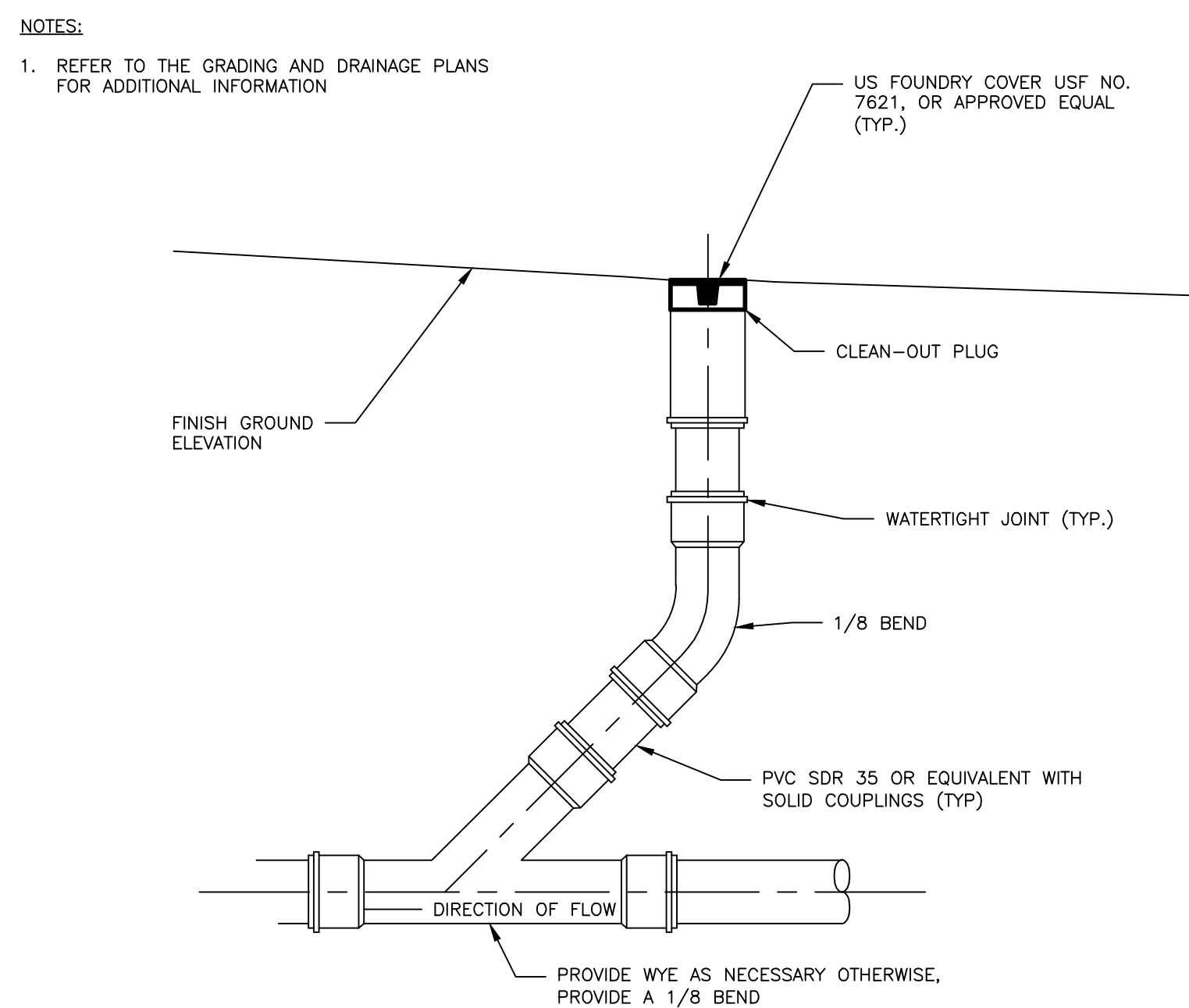
- NOTES:
- ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10' ABOVE GRADE AT POLE STAND-OFF BRACKETS.
 - MINIMUM SEPARATION OF 24 INCHES BETWEEN PRIMARY CABLE/CONDUIT AND GAS LINES SHALL BE MAINTAINED.
 - CONDUITS WITHIN THE CITY RIGHT-OF-WAY SHALL BE ENCASED IN CONCRETE.

UTILITY TRENCH - PRIMARY AND SECONDARY POWER,
TELEPHONE, AND CABLE
NOT TO SCALE

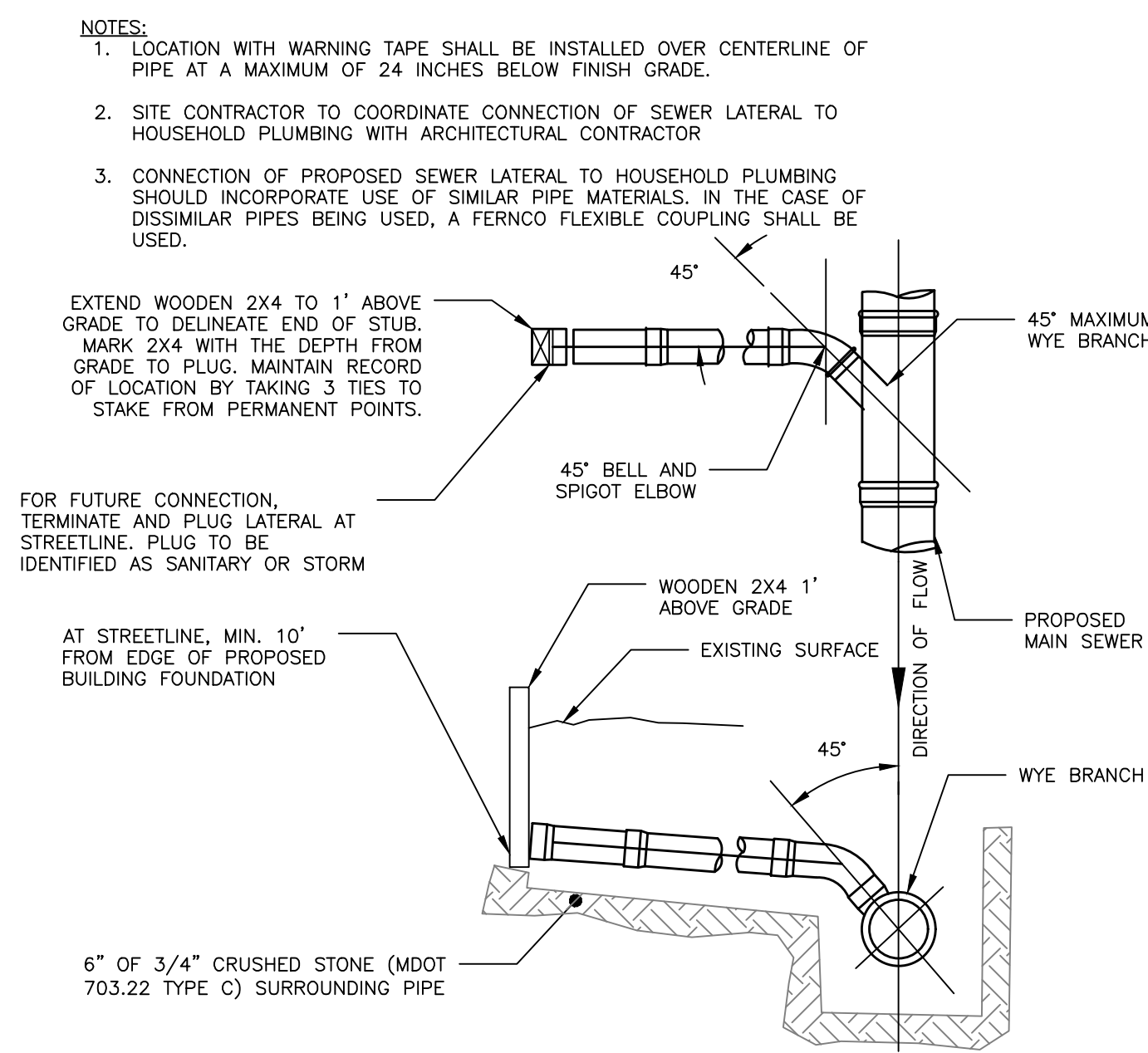
- DESIGN NOTES:
- ANY ALTERNATE TRENCHING METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
 - ALL CONSTRUCTION METHODS SHALL CONFORM TO THE CITY OF PORTLAND TECHNICAL STANDARDS FIGURE II-2.
 - BRACING & SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
 - WHERE APPLICABLE, PERFORATIONS IN STORM DRAIN (PERF. SD) SHALL BE ORIENTED UP.
 - ALL STORM DRAINS SHALL BE PVC SDR 35 MIN PS-46 RATING OR IN ACCORDANCE WITH CITY OF PORTLAND TECHNICAL MANUAL, SECTION 2 - SANITARY SEWER AND STORM DRAIN - PART 2.5.2
 - IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
 - THIS DETAIL SHALL BE APPLIED ONLY TO PIPE TRENCHES WITHIN OF THE CITY OF PORTLAND R.O.W.
 - STORM DRAIN COVER BETWEEN 2' AND 3' SHALL INCLUDE 4" OF RIGID INSULATION. COVER BETWEEN 3' AND 4' SHALL INCLUDE 2" RIGID INSULATION. OTHER UTILITIES: ADD 2" OF RIGID INSULATION FOR EACH FOOT ABOVE MINIMUM DEPTH.
 - DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION. UNDER THE HAUNCHES OF THE PIPE, BUT IN ALL CASES DIMENSION B SHALL BE AT LEAST 9".
 - DIMENSION A IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION A SHALL BE BASED ON PIPE DIAMETER D, AS SET FORTH IN THE TABLE BELOW.



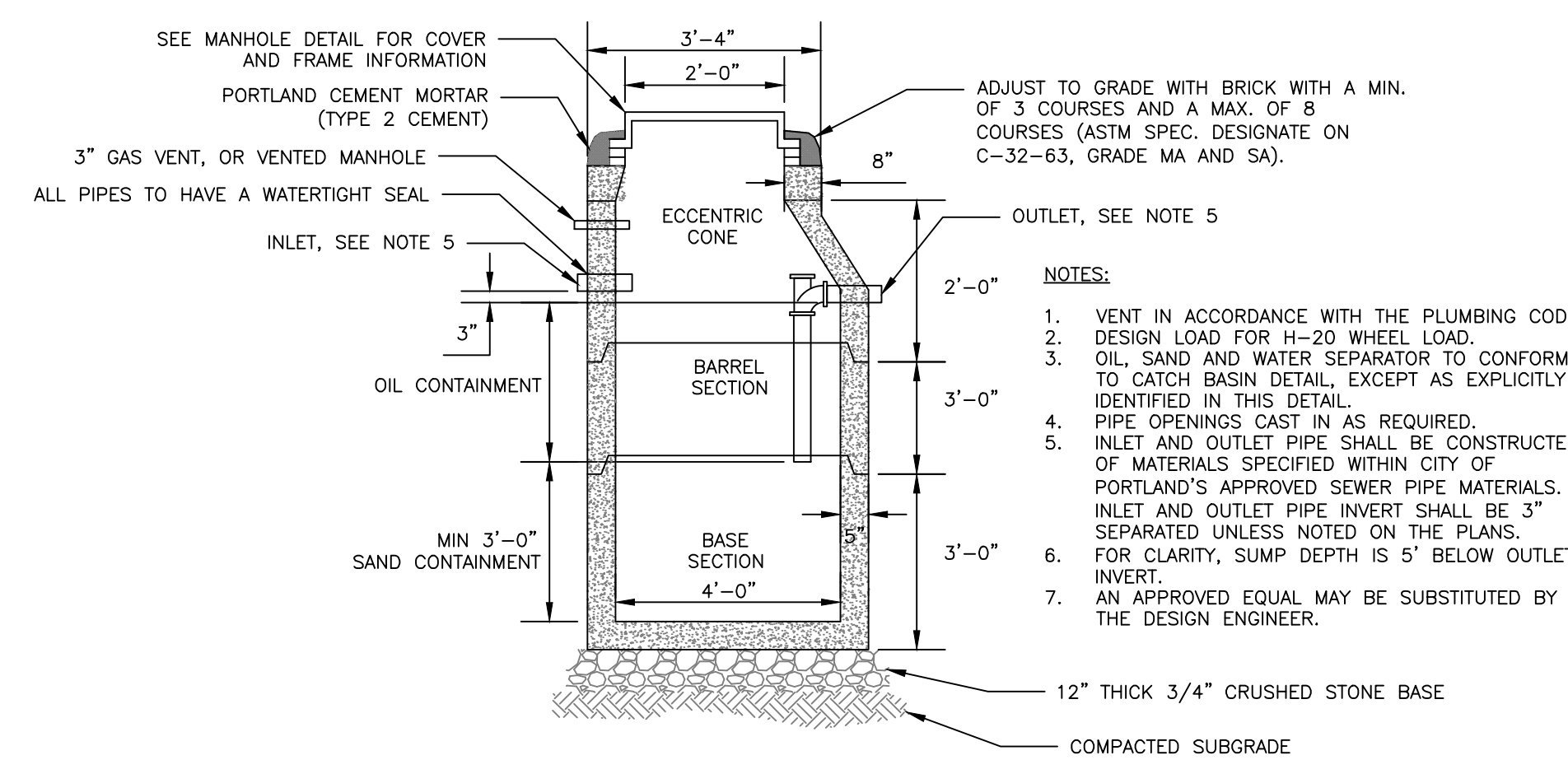
CITY OF PORTLAND TYPICAL PIPE TRENCH DETAIL
NOT TO SCALE



CLEANOUT DETAIL
NOT TO SCALE



SEWER TEE/WYE CONNECTION DETAIL
NOT TO SCALE



4'-0" DIAMETER PRECAST OIL AND WATER SEPARATOR
NOT TO SCALE

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR

BY

DATE

SITE PLAN

WHS

3/27/20

UTILITY DETAILS - 1

210 VALLEY STREET REDEVELOPMENT

AVESTA VALLEY STREET LP

307 CUMBERLAND AVE, PORTLAND, ME 04101

ACORN ENGINEERING, INC.

65 HANOVER ST, PORTLAND, MAINE 04101

(207) 775-2655

FILE:

1127_CIVIL

JN:

1127

SCALE:

NTS

DESIGNED BY:

SUL

DRAWN BY:

KRB

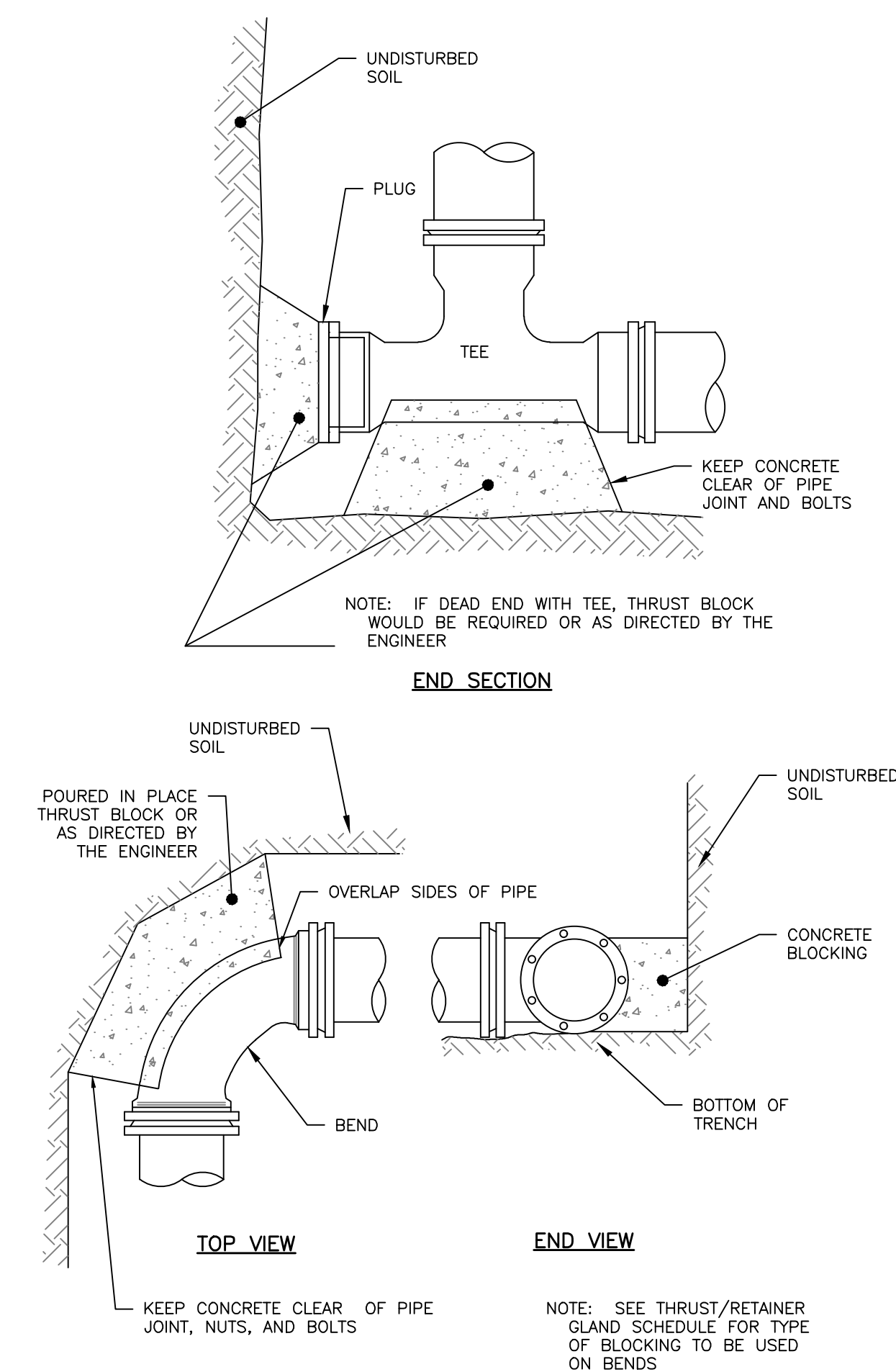
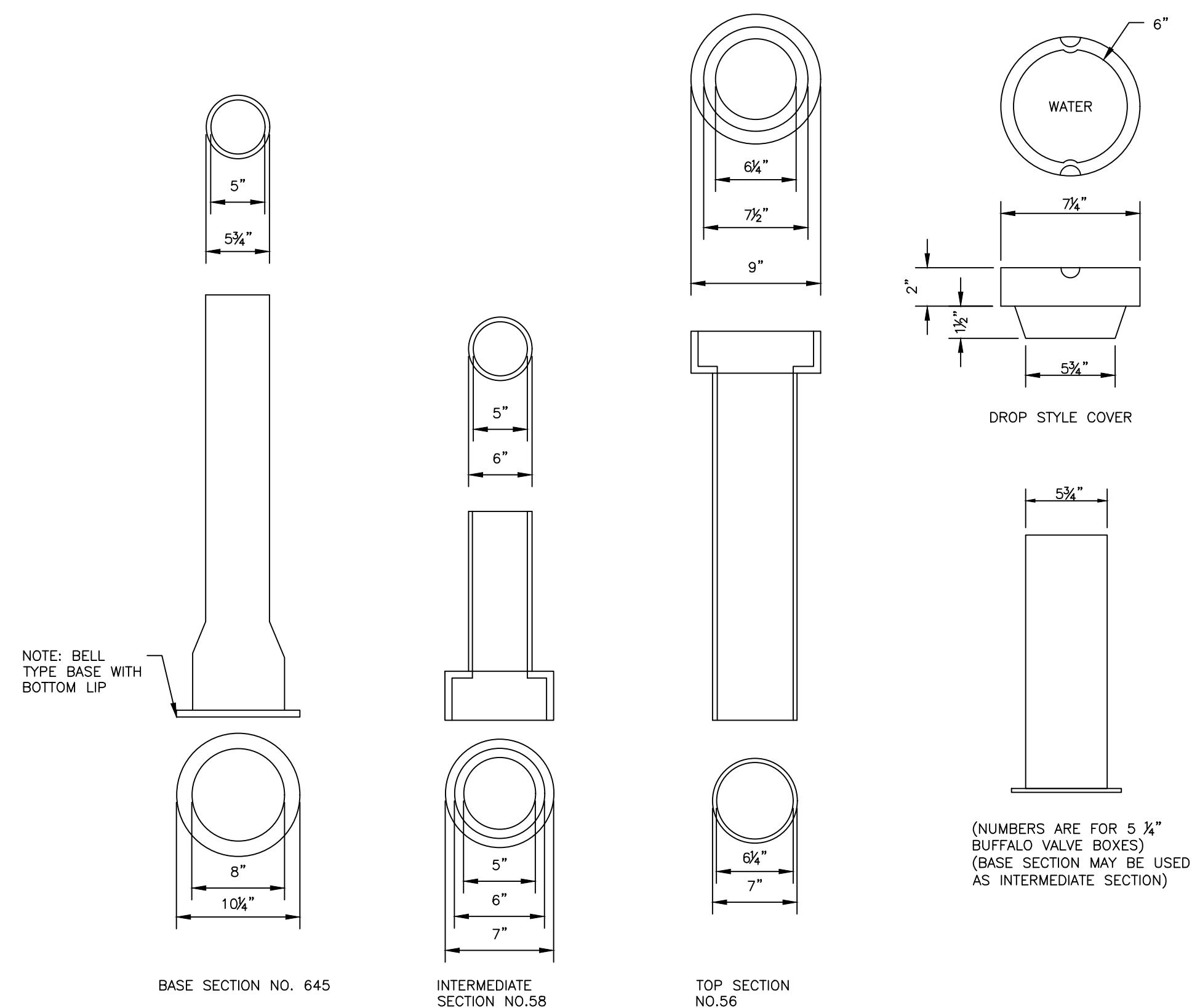
CHECKED BY:

WHS

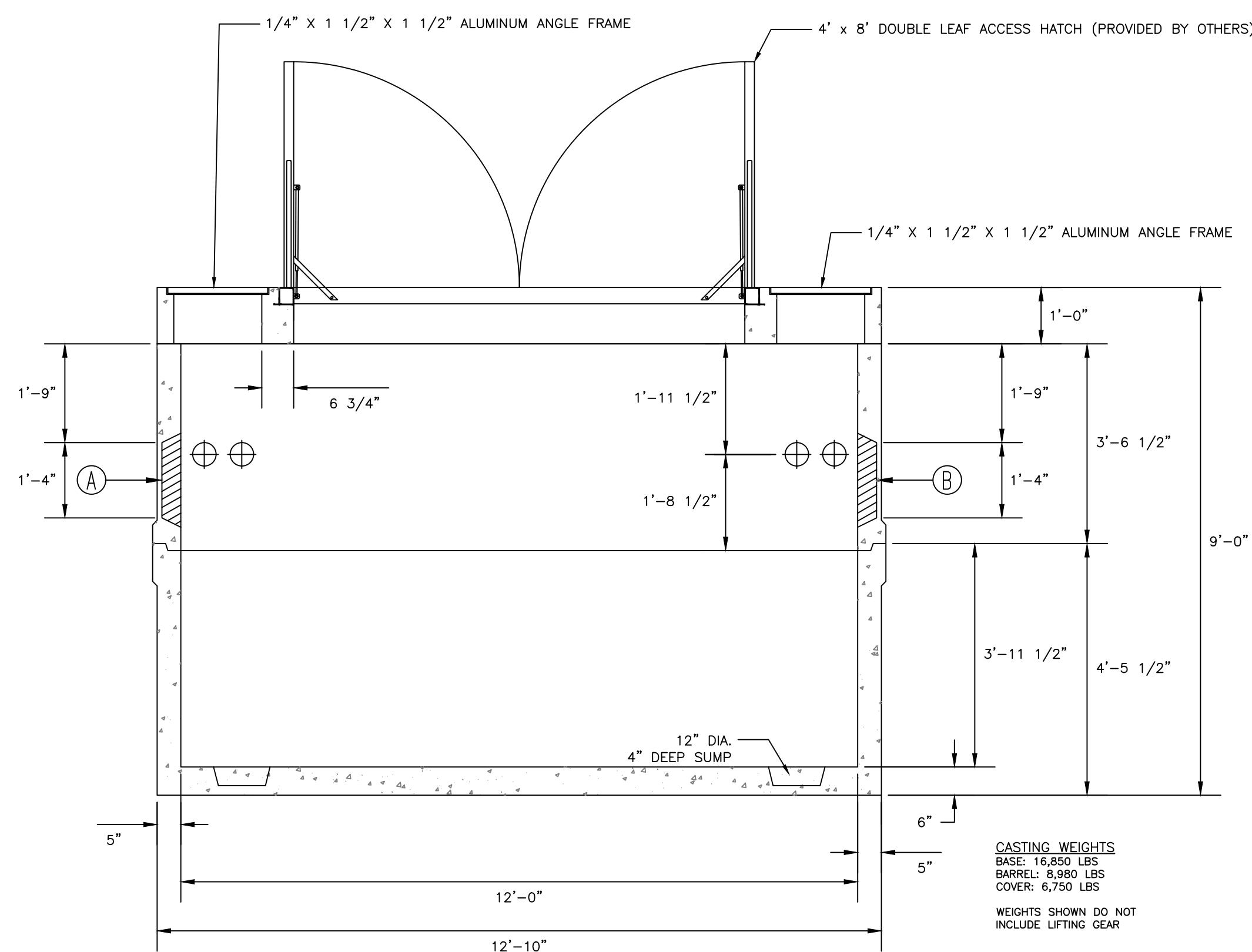
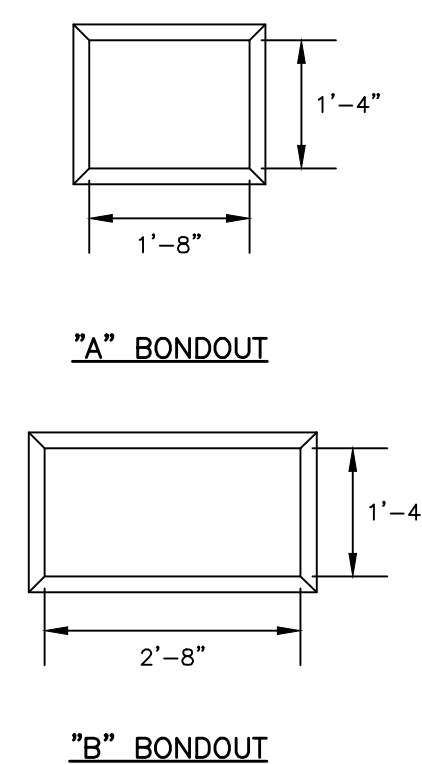
4-1-2020

DRAWING NO.

C-43

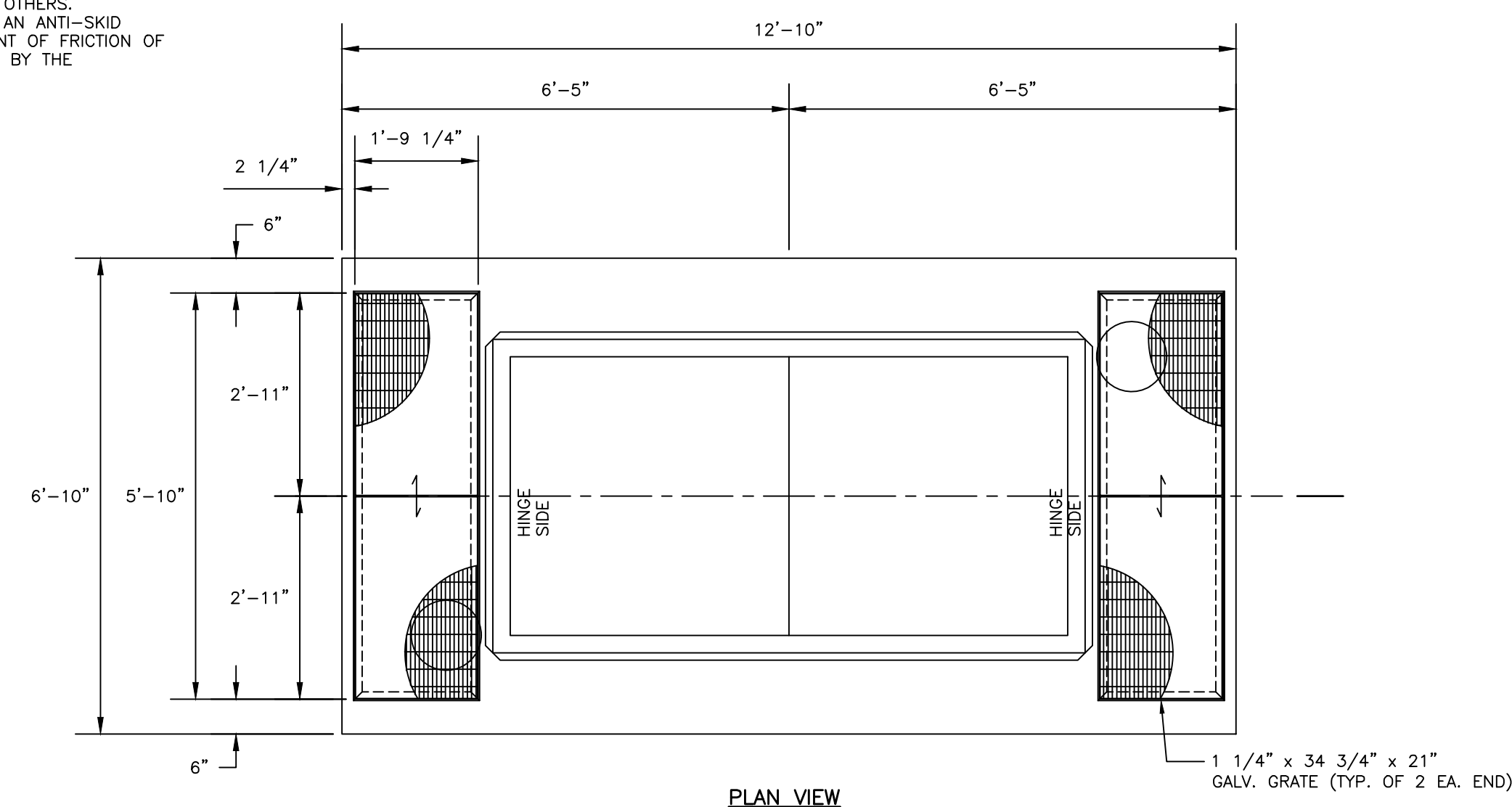


- NOTES:
1. VAULT SHALL BE DESIGNED TO WITHSTAND H2O WHEEL LOADING WITH 6" OF OVERBURDEN. THE DESIGN SHALL ALSO COMPLY WITH THE STRENGTH REQUIREMENTS OF NATIONAL ELECTRICAL SAFETY CODE SECTION 323A. PROVIDE SHOP DRAWINGS STAMPED BY A STATE OF MAINE REGISTERED PROFESSIONAL ENGINEER UPON REQUEST.
 2. JOINTS SEALED WITH ASPHALT.
 3. MOUNTINGS FOR CABLE RACKS ETC. CAST IN WALL BY FURTHER PLANS OR FIELD LOCATED.
 4. MANHOLE SHALL BE SET ON A SUITABLE GRAVEL BASE. CABLES ARE TO BE RACKED ALONG ONE WALL ONLY.
 5. OPTION OF USING 8" THICK WALLS TO OFFSET ANY OTHER LOAD FACTORS, SOLLS OR OTHER FACTORS SPECIFIC TO SITE.



- NOTES:
1. CONCRETE: 5,000 PSI AFTER 28 DAYS.
 2. JOINTS TO BE SEALED WITH CONSEAL CS102 JOINT SEALANT.
 3. KNOCKOUTS EXTEND 4" INTO THE WALL WITH SIDES SLOPED 45° PROVIDING A BELL TYPE OPENING.
 4. SHOULD BE CLEAR OF ALL REINFORCING BARS. KNOCKOUTS TO BE REINFORCED WITH 4" DIA. STEEL.
 5. REINFORCING: DESIGNED FOR H=20 LOADING.
 6. HATCH & GALV. GRATING PROVIDED BY OTHERS.
 7. HATCH DOORS SHALL BE COATED WITH AN ANTI-SKID SURFACE HAVING A MINIMUM COEFFICIENT OF FRICTION OF 0.6 AND BE LISTED AS FLY ASH RESISTANT BY THE UNDERWRITERS LABORATORIES.

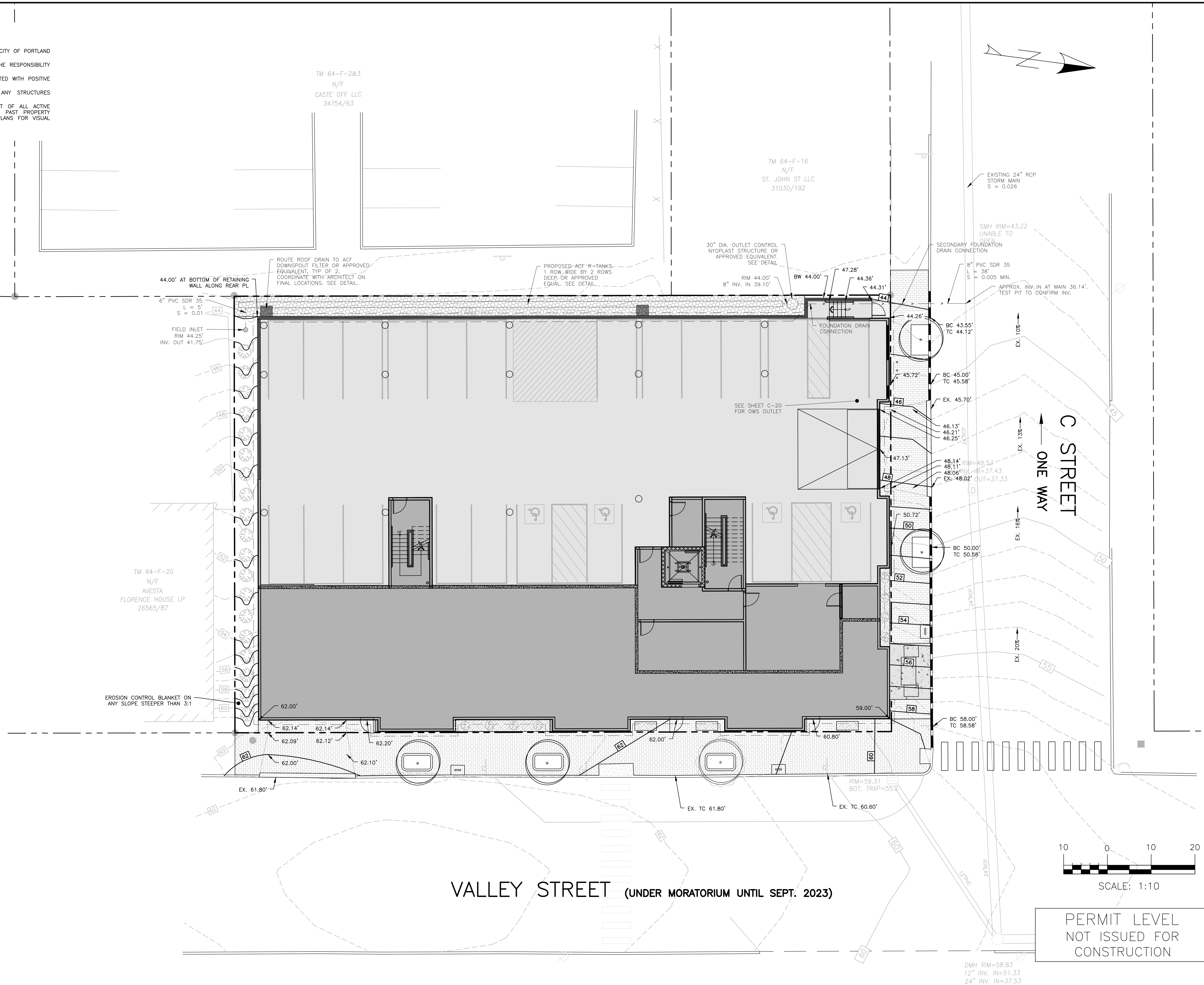
1. MID# 6000621670 GRATES
2. MID# 6000621525 BILCO DOOR



PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

1. ALL WORK WITHIN THE CITY STREET RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
2. DESIGN OF TEMPORARY SOIL RESTRAINT MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR NECESSARY FOR CONSTRUCTION.
3. CONTRACTOR SHALL ENSURE THAT UNDERDRAINS ARE CONSTRUCTED WITH POSITIVE OUTLET TO PROPOSED CONNECTIONS.
4. CATCH BASIN INLET PROTECTION TO BE INSTALLED WITHIN ANY STRUCTURES DOWNGRADIENT OF ACTIVE CONSTRUCTION.
5. SEDIMENTATION BARRIERS ARE TO BE INSTALLED DOWNGRADIENT OF ALL ACTIVE CONSTRUCTION WORK PER DETAIL. BARRIERS TO NOT EXTEND PAST PROPERTY LINES. BARRIERS SHOWN OFFER FROM PROPERTY LINES ON PLANS FOR VISUAL PURPOSES ONLY.

AVERAGE GRADES AND BUILDING HEIGHT	
NORTHEAST CORNER ELEVATION	59.00'
SOUTHEAST CORNER ELEVATION	62.00'
SOUTHWEST CORNER ELEVATION	44.00'
NORTHWEST CORNER ELEVATION	44.26'
AVERAGE GRADE PLANE	52.32'
ELEVATION AT ROOF	119.50'
BUILDING HEIGHT	67.18'

[illegible]

GRADING & DRAINAGE PLAN – EXTERIOR

PROJECT NAME:

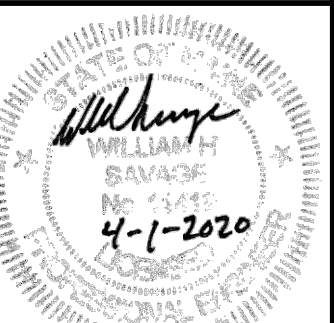
210 VALLEY STREET REDEVELOPMENT

CLIENT:

AVESTA VALLEY STREET LP
307 CUMBERLAND AVE., PORTLAND, ME 04101


ACORN ENGINEERS, INC. **A C O R N**
 65 HANOVER ST., PORTLAND, MAINE 04101
 (207) 775-2655
 ENGINEERING, INC.

FILE:	1127_CIVIL
IN:	1127
SCALE:	AS NOTED
DESIGNED BY:	WHS
DRAWN BY:	KRB
CHECKED BY:	WHS



DRAWING NO.

C-30

1. ALL WORK WITHIN THE CITY STREET RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
2. DESIGN OF TEMPORARY SOIL RESTRAINT MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IF NECESSARY FOR CONSTRUCTION.
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5. SEDIMENTATION BARRIERS ARE TO BE INSTALLED DOWNGRADIENT OF ALL ACTIVE CONSTRUCTION WORK PER DETAIL. BARRIERS TO NOT EXTEND PAST PROPERTY LINES. BARRIERS SHOWN OFFSET FROM PROPERTY LINES ON PLANS FOR VISUAL PURPOSES ONLY.

[illegible]

GRADING & DRAINAGE PLAN - INTERIOR

210 VALLEY STREET REDEVELOPMENT

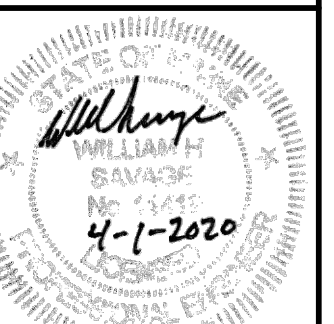
PROJECT NAME:

CLIENT:

AVESTA VALLEY STREET LP
307 CUMBERLAND AVE., PORTLAND, ME 04101

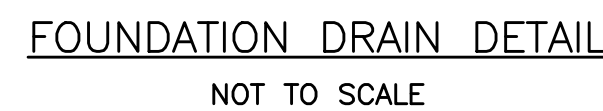
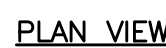
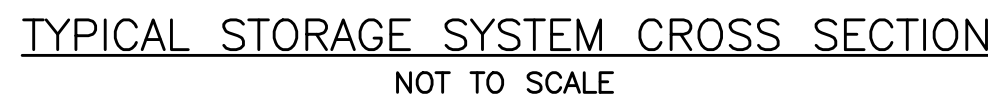
	A C O R N	ENGINEERING, INC.
ACORN ENGINEERING, INC. 65 HANOVER ST., PORTLAND MAINE 04101 (207) 775-2855	THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION OF THE ENGINEER. NO PART OF THIS DOCUMENT MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF ACORN ENGINEERING, INC.	

FILE:	1127_CIVIL
FILE:	1127
SCALE:	AS NOTED
DESIGNED BY:	WHS
DRAWN BY:	KRB
CHECKED BY:	WHS



DRAWING NO.

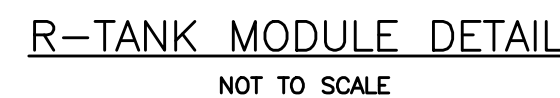
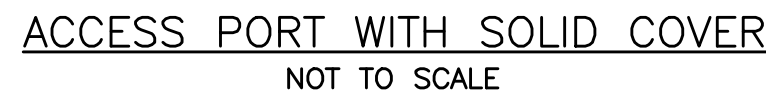
C-31



PERMIT LEVEL
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CONSTRUCTION

 ACORN ENGINEERING, INC.		THIS PLAN MAY NOT BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY REPRODUCTION, IN WHOLE OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.		PROJECT NO. 04101	DATE 3/27/20
		ACORN ENGINEERING, INC. 65 HANOVER STREET, SUITE 200 PORTLAND, ME 04101 (207) 775-9555			
FILE:		1127_CIVIL			
JN:		1127			
SCALE:		NTS			
DESIGNED BY:		SJL			
DRAWN BY:		KRB			
CHECKED BY:		WHS			
					
DRAWING NO.		C-45			
DRAINAGE DETAILS - 1					
PROJECT NAME:		210 VALLEY STREET REDEVELOPMENT			
CLIENT:		AVESTA VALLEY STREET LP 307 CUMBERLAND AVE, PORTLAND, ME 04101			
ISSUED FOR		BY			
SITE PLAN		DATE			
		WHS			
		3/27/20			

1. THE INSPECTION PORT IS USED IN THE MAINTENANCE MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH MAINTENANCE ROW VIA THE ACCESS STRUCTURE FROM EITHER END AS NEEDED.
3. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.



1. WEIGHT (APPROX.):
 - 1.1. EMPTY W/CARTRIDGE: 360-LB MAX
 - 1.2. FULL OF WATER: 1600-LB MAX
2. MATERIAL:
 - 2.1. FILTER HOUSING AND COVER: STAINLESS STEEL, 300 SERIES
 - 2.2. CARTRIDGE PLATE: STAINLESS STEEL, 300 SERIES
 - 2.3. SUPPORT HARDWARE: CRES 300 SERIES OR EQUAL
3. PERFORMANCE CHARACTERISTICS (TYP):
 - 3.1. DEBRIS CAPACITY: 2.5 CU-FT
 - 3.2. FILTER FLOW RATE: 1 TABLE 1 FOR CARTRIDGE FLOW RATES. NOTE THAT THIS UNIT CONTAINS TWO (2) CARTRIDGES.
4. BYPASS FLOW RATE: 675 GPM (1.5 CFS)
 - 4.1. TYPICAL INSTALLATION: CUT DOWNSPOUT PIPE AND CONNECT THE 63/61IN AND OUTLET PIPES AS REQUIRED TO REDIRECT RAIN FLOW THROUGH THE FILTER BOX.
5. USE ONLY THE FLOW RATES REPLACEMENT MEDIA CARTRIDGES.
6. ALL TANK DIMENSIONS ARE REFERENCE.

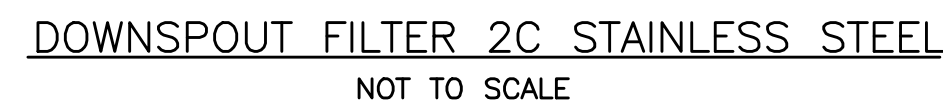


TABLE 1, AVAILABLE CARTRIDGES			
PART NUMBER	DESCRIPTION	COLOR CODE	FLOW RATE (TYP)
9718-1	STANDARD	RED	115 GPM (0.26 CFS)
9718-2	BACTERIA	YELLOW	115 GPM (0.26 CFS)
9718-3	HYDROCARBONS	BLUE	115 GPM (0.26 CFS)
9718-4	HEAVY METALS	GREY	60 GPM (0.13 CFS)
9718-5	STANDARD (SHORT)	MINT	115 GPM (0.26 CFS)
9718-6	NUTRIENTS	GREEN	100 GPM (0.22 CFS)
9718-7	HIGH FLOW	RED (MARKED)	260 GPM (0.58 CFS)
9718-15	B.N.H.	GREEN	100 GPM (0.22 CFS)

APARTMENTS

200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020

UNIT ACCESSIBILITY SUMMARY		
REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010	PROVIDED IN PROJECT	EXCESS UNITS
SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired		
60 units within building X 5% = 3 units to meet ADAAG	3 ADAAG units	0 Excess
60 units within building X 2% = 1.2 or 2 units to be hearing and vision impaired	2 Hearing and Vision Impaired Units	0 Excess
REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009		
SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A		
0 Ground Floor (First Floor total) Units X 10% = 0 or 0 units		
SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A		
60 Upper Floor (2,3,4,5 Floors) Units X 10% = 6 or 6 units	15 Type-A units (includes 3 ADAAG)	
	12 Type-A units total	6 Excess Type-A units total
All the rest to be Type B	45 Type-B units (includes 2 H/V)	
MHRA requires ALL units to either be Type A or B units		
All units to meet Federal Fair Housing Act		

UNIT TYPES - 60 TOTAL UNITS				
SECOND FLOOR	3 EFFICIENCY UNITS	6 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS
THIRD FLOOR	3 EFFICIENCY UNITS	6 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS
FOURTH FLOOR	3 EFFICIENCY UNITS	6 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS
FIFTH FLOOR	2 EFFICIENCY UNITS	7 ONE BEDROOM UNITS	5 TWO BEDROOM UNITS	1 THREE BEDROOM UNITS
TOTALS	11 EFFICIENCY UNITS	25 ONE BEDROOM UNITS	14 TWO BEDROOM UNITS	10 THREE BEDROOM UNITS

ACCESSIBLE UNIT TYPES									
FLOOR	TYPE - A EFFICIENCY	TYPE - A ONE BED	TYPE - ADDAG ONE BED	H/V IMPAIRED ONE BED	TYPE - A TWO BED	TYPE - ADDAG TWO BED	H/V IMPAIRED TWO BED	TYPE - A THREE BED	TYPE - ADDAG THREE BED
SECOND FLOOR	1	0	1	1	1	0	0	1	0
THIRD FLOOR	1	1	0	0	0	1	0	1	0
FOURTH FLOOR	1	1	0	0	1	0	0	0	1
FIFTH FLOOR	0	1	0	0	1	0	1	0	0
TOTALS	3	3	1	1	3	1	1	2	1

SQUARE FOOTAGES ARE MEASURED TO THE OUTSIDE FACE OF EXTERIOR WALLS AND CENTERLINE OF SHARED WALLS



1 BASEMENT PLAN
1/8" = 1'-0"



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APARTMENTS

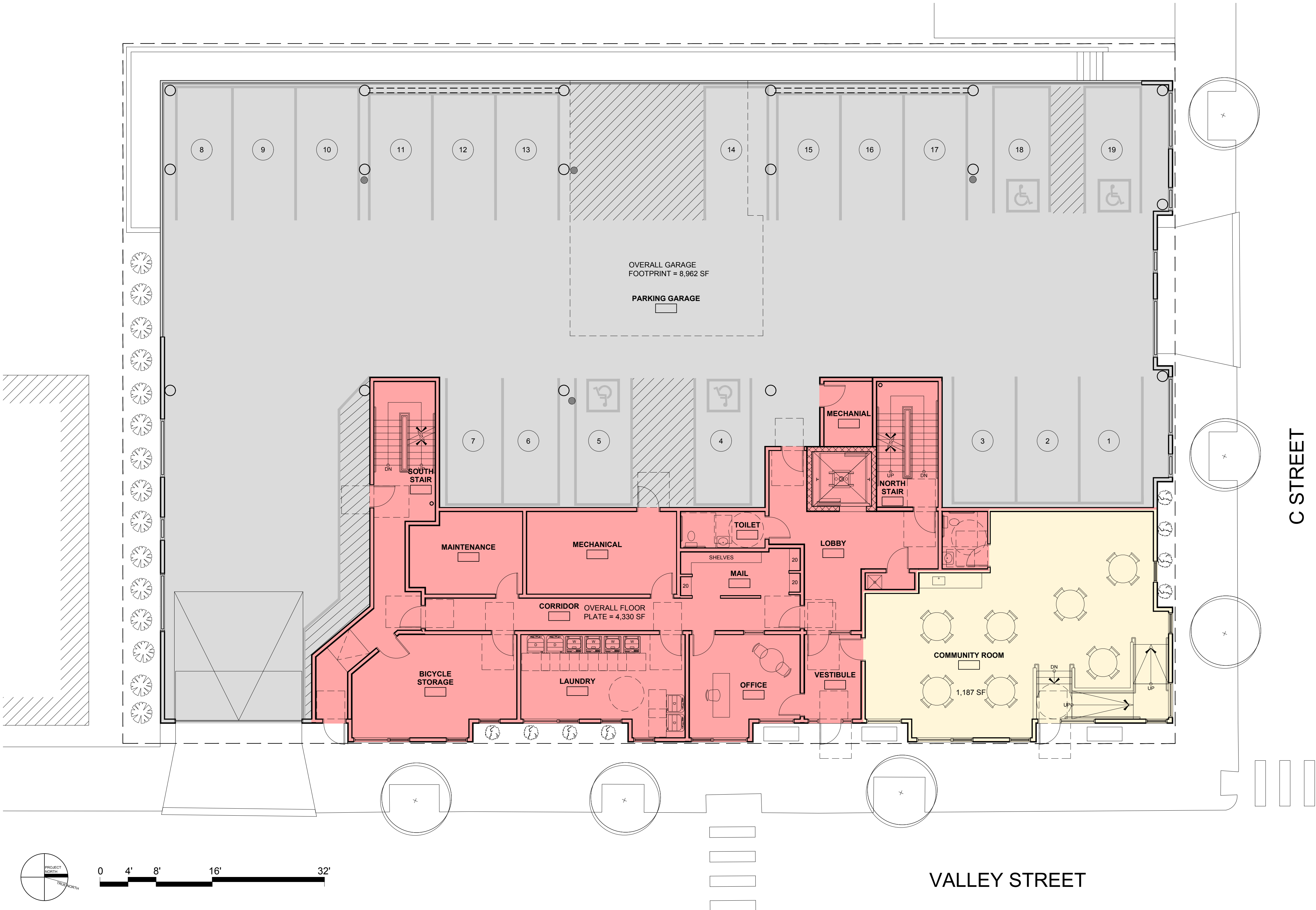
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020

UNIT ACCESSIBILITY SUMMARY		
REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010	PROVIDED IN PROJECT	EXCESS UNITS
SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired		
60 units within building X 5% = 3 units to meet ADAAG	3 ADAAG units	0 Excess
60 units within building X 2% = 1.2 or 2 units to be hearing and vision impaired	2 Hearing and Vision Impaired Units	0 Excess
REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009		
SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A		
0 Ground Floor (First Floor total) Units X 10% = 0 or 0 units		
SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A		
60 Upper Floor (2,3,4,5 Floors) Units X 10% = 6 or 6 units	15 Type-A units (includes 3 ADAAG)	
	12 Type-A units total	6 Excess Type-A units total
All the rest to be Type B	45 Type-B units (includes 2 H/V)	
MHRA requires ALL units to either be Type A or B units		
All units to meet Federal Fair Housing Act		

UNIT TYPES - 60 TOTAL UNITS				
SECOND FLOOR	3 EFFICIENCY UNITS	6 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS
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FIFTH FLOOR	2 EFFICIENCY UNITS	7 ONE BEDROOM UNITS	5 TWO BEDROOM UNITS	1 THREE BEDROOM UNITS
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ACCESSIBLE UNIT TYPES									
FLOOR	TYPE - A EFFICIENCY	TYPE - A ONE BED	TYPE - ADDAG ONE BED	H/V IMPAIRED ONE BED	TYPE - A TWO BED	TYPE - ADDAG TWO BED	H/V IMPAIRED TWO BED	TYPE - A THREE BED	TYPE - ADDAG THREE BED
SECOND FLOOR	1	0	1	1	1	0	0	1	0
THIRD FLOOR	1	1	0	0	0	1	0	1	0
FOURTH FLOOR	1	1	0	0	1	0	0	0	1
FIFTH FLOOR	0	1	0	0	1	0	1	0	0
TOTALS	3	3	1	1	3	1	1	2	1



SQUARE FOOTAGES ARE MEASURED TO THE OUTSIDE FACE OF EXTERIOR WALLS AND CENTERLINE OF SHARED WALLS



1 FIRST FLOOR PLAN
1/8" = 1'-0"

RYAN SENATORE **ARCHITECTURE**

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APARTMENTS

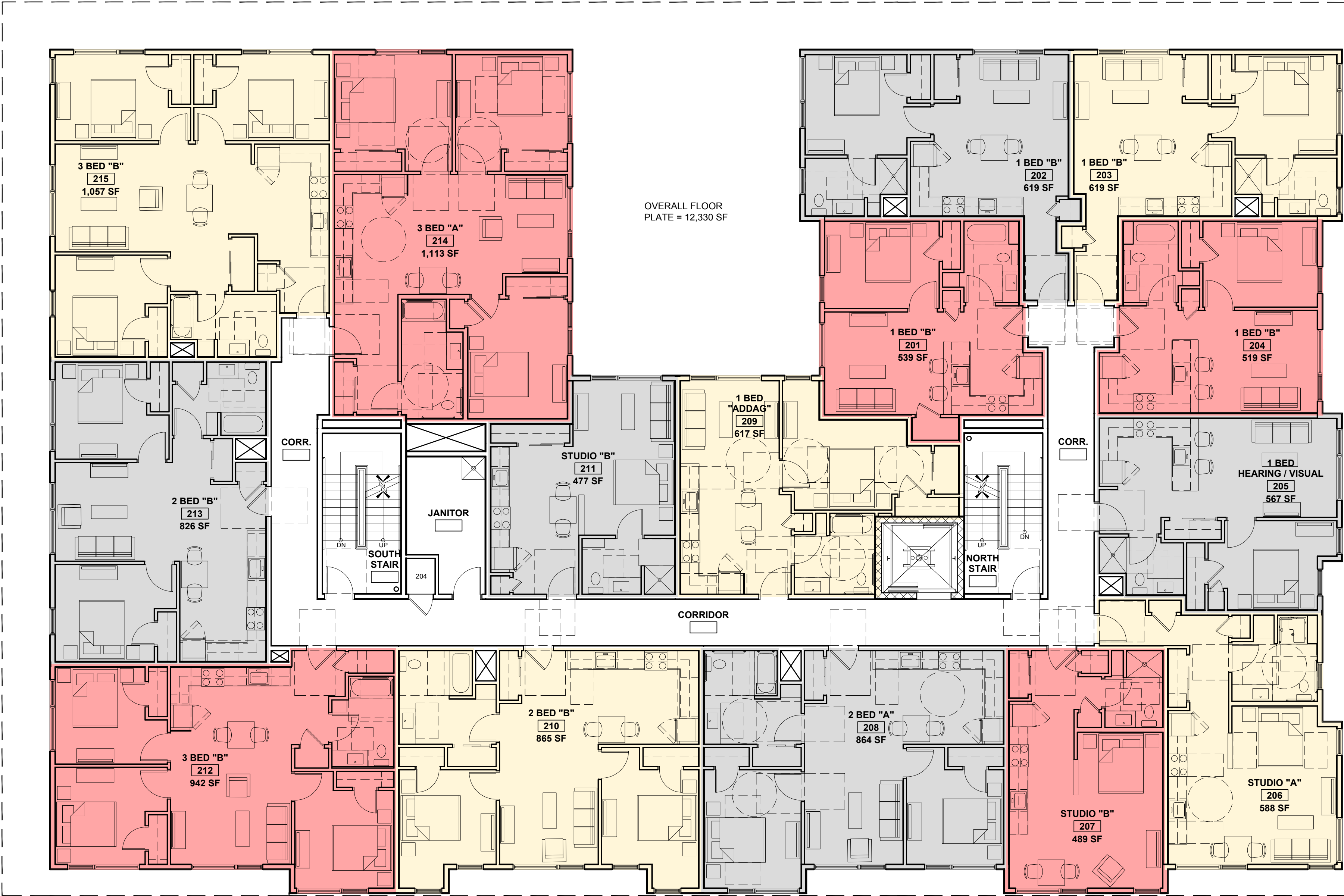
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020

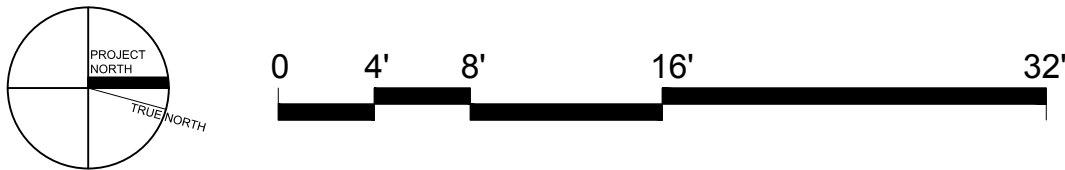
UNIT ACCESSIBILITY SUMMARY		
REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010	PROVIDED IN PROJECT	EXCESS UNITS
SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired		
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60 units within building X 2% = 1.2 or 2 units to be hearing and vision impaired	2 Hearing and Vision Impaired Units	0 Excess
REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009		
SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A		
0 Ground Floor (First Floor total) Units X 10% = 0 or 0 units		
SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A		
60 Upper Floor (2,3,4,5 Floors) Units X 10% = 6 or 6 units	15 Type-A units (includes 3 ADAAG)	
	12 Type-A units total	6 Excess Type-A units total
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MHRA requires ALL units to either be Type A or B units		
All units to meet Federal Fair Housing Act		

UNIT TYPES - 60 TOTAL UNITS				
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FOURTH FLOOR	3 EFFICIENCY UNITS	6 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS
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TOTALS	11 EFFICIENCY UNITS	25 ONE BEDROOM UNITS	14 TWO BEDROOM UNITS	10 THREE BEDROOM UNITS

ACCESSIBLE UNIT TYPES									
FLOOR	TYPE - A EFFICIENCY	TYPE - A ONE BED	TYPE - ADDAG ONE BED	H/V IMPAIRED ONE BED	TYPE - A TWO BED	TYPE - ADDAG TWO BED	H/V IMPAIRED TWO BED	TYPE - A THREE BED	TYPE - ADDAG THREE BED
SECOND FLOOR	1	0	1	1	1	0	0	1	0
THIRD FLOOR	1	1	0	0	0	1	0	1	0
FOURTH FLOOR	1	1	0	0	1	0	0	0	1
FIFTH FLOOR	0	1	0	0	1	0	1	0	0
TOTALS	3	3	1	1	3	1	1	2	1



SQUARE FOOTAGES ARE MEASURED TO THE OUTSIDE FACE OF EXTERIOR WALLS AND CENTERLINE OF SHARED WALLS



1 SECOND FLOOR PLAN
1/8" = 1'-0"

VALLEY STREET

C STREET

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APARTMENTS

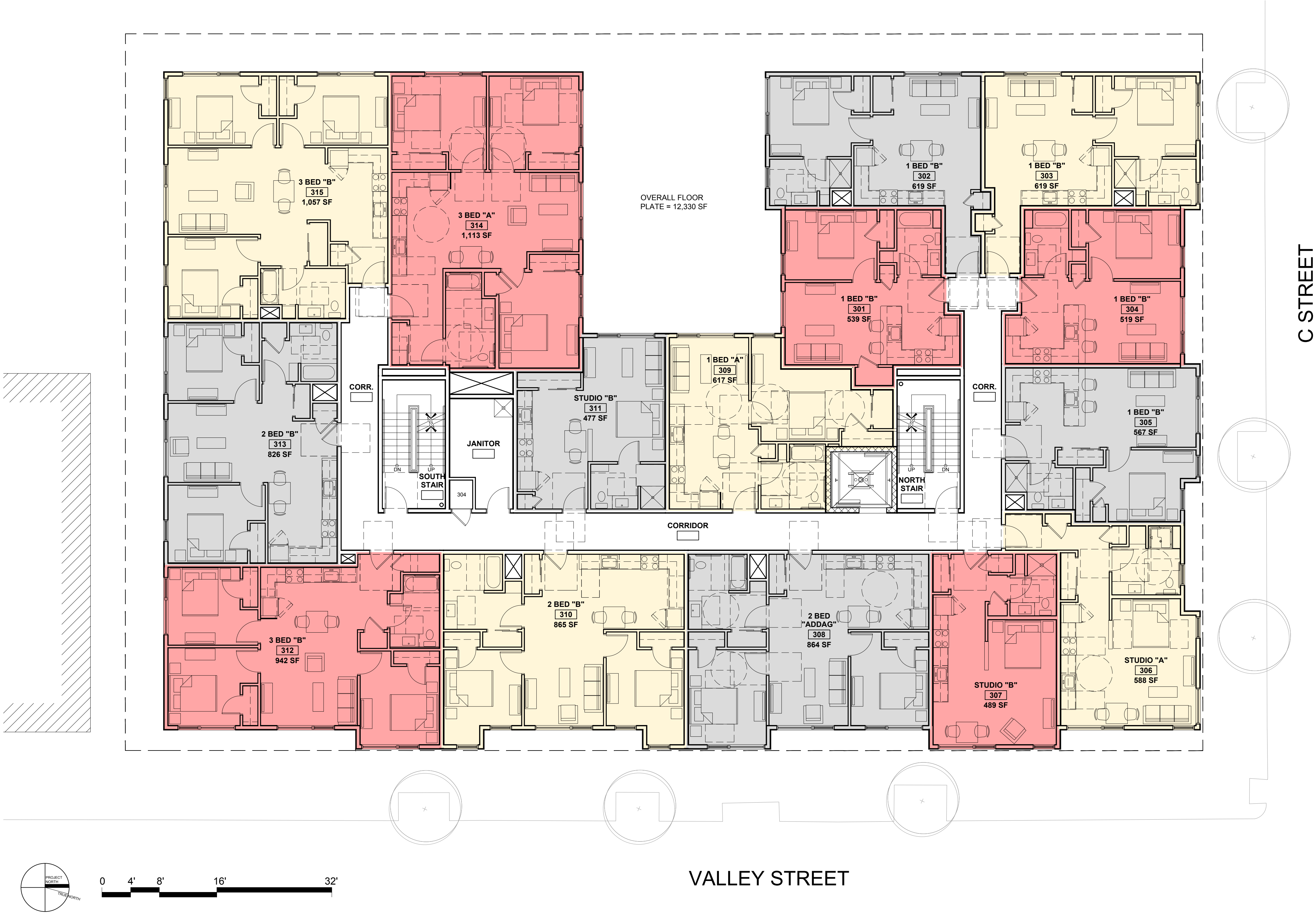
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020

UNIT ACCESSIBILITY SUMMARY		
REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010	PROVIDED IN PROJECT	EXCESS UNITS
SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired		
60 units within building X 5% = 3 units to meet ADAAG	3 ADAAG units	0 Excess
60 units within building X 2% = 1.2 or 2 units to be hearing and vision impaired	2 Hearing and Vision Impaired Units	0 Excess
REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009		
SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A		
0 Ground Floor (First Floor total) Units X 10% = 0 or 0 units		
SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A		
60 Upper Floor (2,3,4,5 Floors) Units X 10% = 6 or 6 units	15 Type-A units (includes 3 ADAAG)	
	12 Type-A units total	6 Excess Type-A units total
All the rest to be Type B	45 Type-B units (includes 2 H/V)	
MHRA requires ALL units to either be Type A or B units		
All units to meet Federal Fair Housing Act		

UNIT TYPES - 60 TOTAL UNITS				
SECOND FLOOR	3 EFFICIENCY UNITS	6 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS
THIRD FLOOR	3 EFFICIENCY UNITS	6 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS
FOURTH FLOOR	3 EFFICIENCY UNITS	6 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS
FIFTH FLOOR	2 EFFICIENCY UNITS	7 ONE BEDROOM UNITS	5 TWO BEDROOM UNITS	1 THREE BEDROOM UNITS
TOTALS	11 EFFICIENCY UNITS	25 ONE BEDROOM UNITS	14 TWO BEDROOM UNITS	10 THREE BEDROOM UNITS

ACCESSIBLE UNIT TYPES									
FLOOR	TYPE - A EFFICIENCY	TYPE - A ONE BED	TYPE - ADDAG ONE BED	H/V IMPAIRED ONE BED	TYPE - A TWO BED	TYPE - ADDAG TWO BED	H/V IMPAIRED TWO BED	TYPE - A THREE BED	TYPE - ADDAG THREE BED
SECOND FLOOR	1	0	1	1	1	0	0	1	0
THIRD FLOOR	1	1	0	0	0	1	0	1	0
FOURTH FLOOR	1	1	0	0	1	0	0	0	1
FIFTH FLOOR	0	1	0	0	1	0	1	0	0
TOTALS	3	3	1	1	3	1	1	2	1



SQUARE FOOTAGES ARE MEASURED TO THE OUTSIDE FACE OF EXTERIOR WALLS AND CENTERLINE OF SHARED WALLS



APARTMENTS

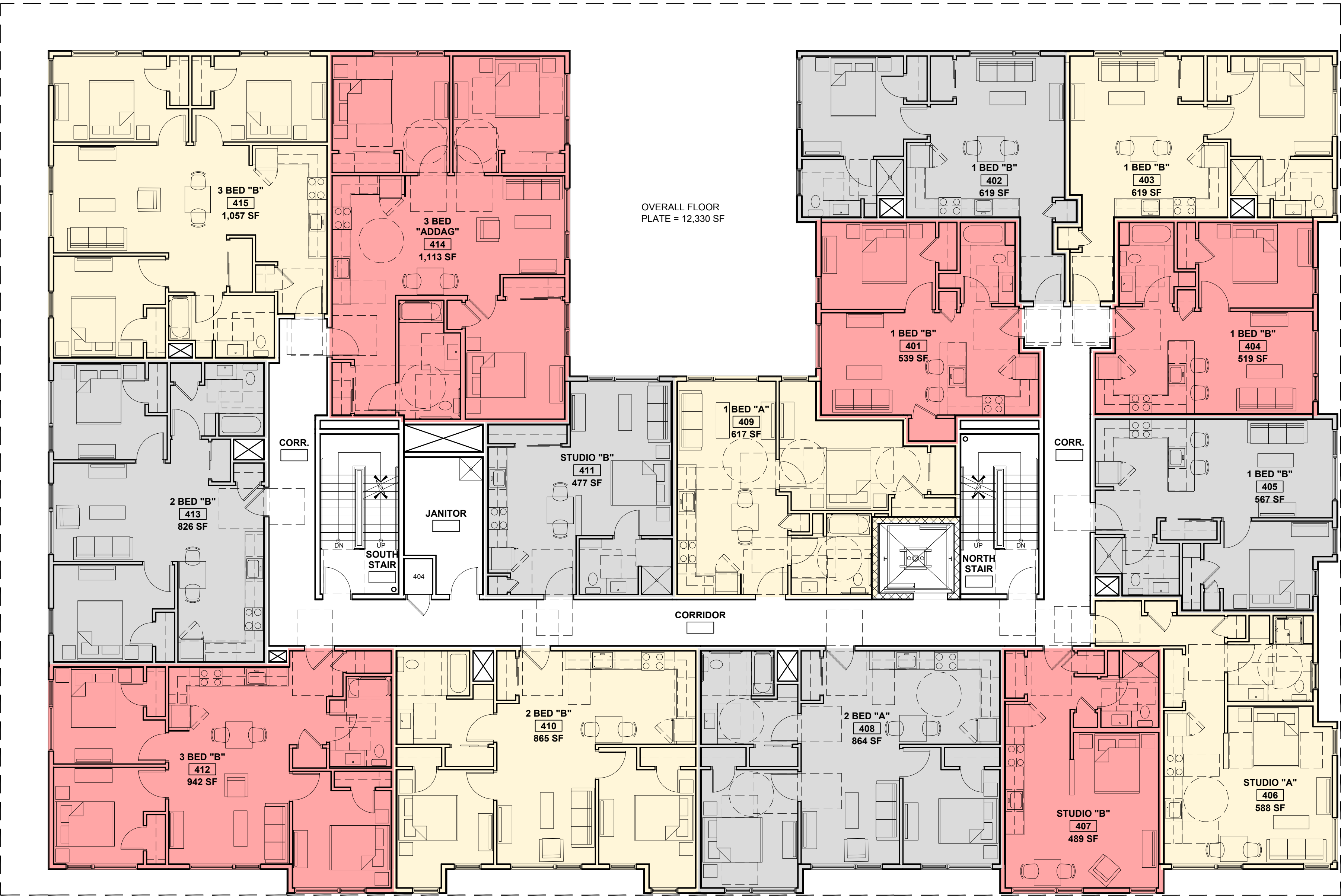
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020

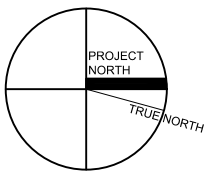
UNIT ACCESSIBILITY SUMMARY		
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SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired		
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THIRD FLOOR	3 EFFICIENCY UNITS	6 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS
FOURTH FLOOR	3 EFFICIENCY UNITS	6 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS
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TOTALS	11 EFFICIENCY UNITS	25 ONE BEDROOM UNITS	14 TWO BEDROOM UNITS	10 THREE BEDROOM UNITS

ACCESSIBLE UNIT TYPES									
FLOOR	TYPE - A EFFICIENCY	TYPE - A ONE BED	TYPE - ADDAG ONE BED	H/V IMPAIRED ONE BED	TYPE - A TWO BED	TYPE - ADDAG TWO BED	H/V IMPAIRED TWO BED	TYPE - A THREE BED	TYPE - ADDAG THREE BED
SECOND FLOOR	1	0	1	1	1	0	0	1	0
THIRD FLOOR	1	1	0	0	0	1	0	1	0
FOURTH FLOOR	1	1	0	0	1	0	0	0	1
FIFTH FLOOR	0	1	0	0	1	0	1	0	0
TOTALS	3	3	1	1	3	1	1	2	1



SQUARE FOOTAGES ARE MEASURED TO THE OUTSIDE FACE OF EXTERIOR WALLS AND CENTERLINE OF SHARED WALLS



0 4' 8' 16' 32'

VALLEY STREET

C STREET

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Not for Construction

APARTMENTS

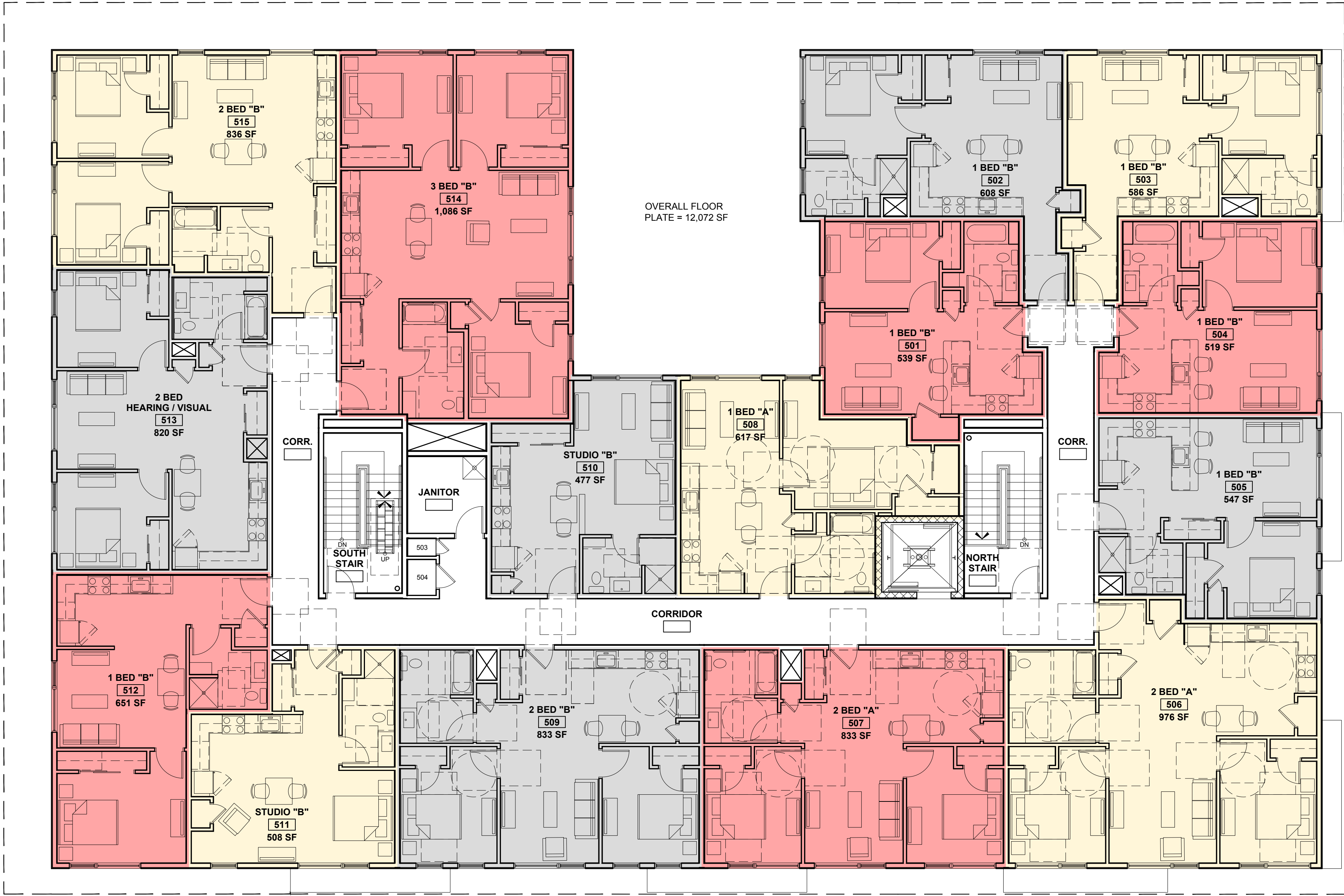
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020

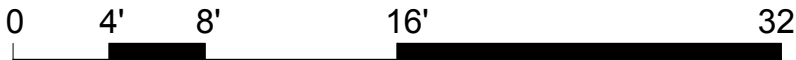
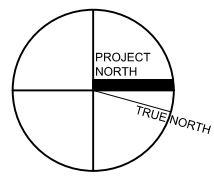
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FOURTH FLOOR	3 EFFICIENCY UNITS	6 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS
FIFTH FLOOR	2 EFFICIENCY UNITS	7 ONE BEDROOM UNITS	5 TWO BEDROOM UNITS	1 THREE BEDROOM UNITS
TOTALS	11 EFFICIENCY UNITS	25 ONE BEDROOM UNITS	14 TWO BEDROOM UNITS	10 THREE BEDROOM UNITS

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SECOND FLOOR	1	0	1	1	1	0	0	1	0
THIRD FLOOR	1	1	0	0	0	1	0	1	0
FOURTH FLOOR	1	1	0	0	1	0	0	0	1
FIFTH FLOOR	0	1	0	0	1	0	1	0	0
TOTALS	3	3	1	1	3	1	1	2	1



SQUARE FOOTAGES ARE MEASURED TO THE OUTSIDE FACE OF EXTERIOR WALLS AND CENTERLINE OF SHARED WALLS

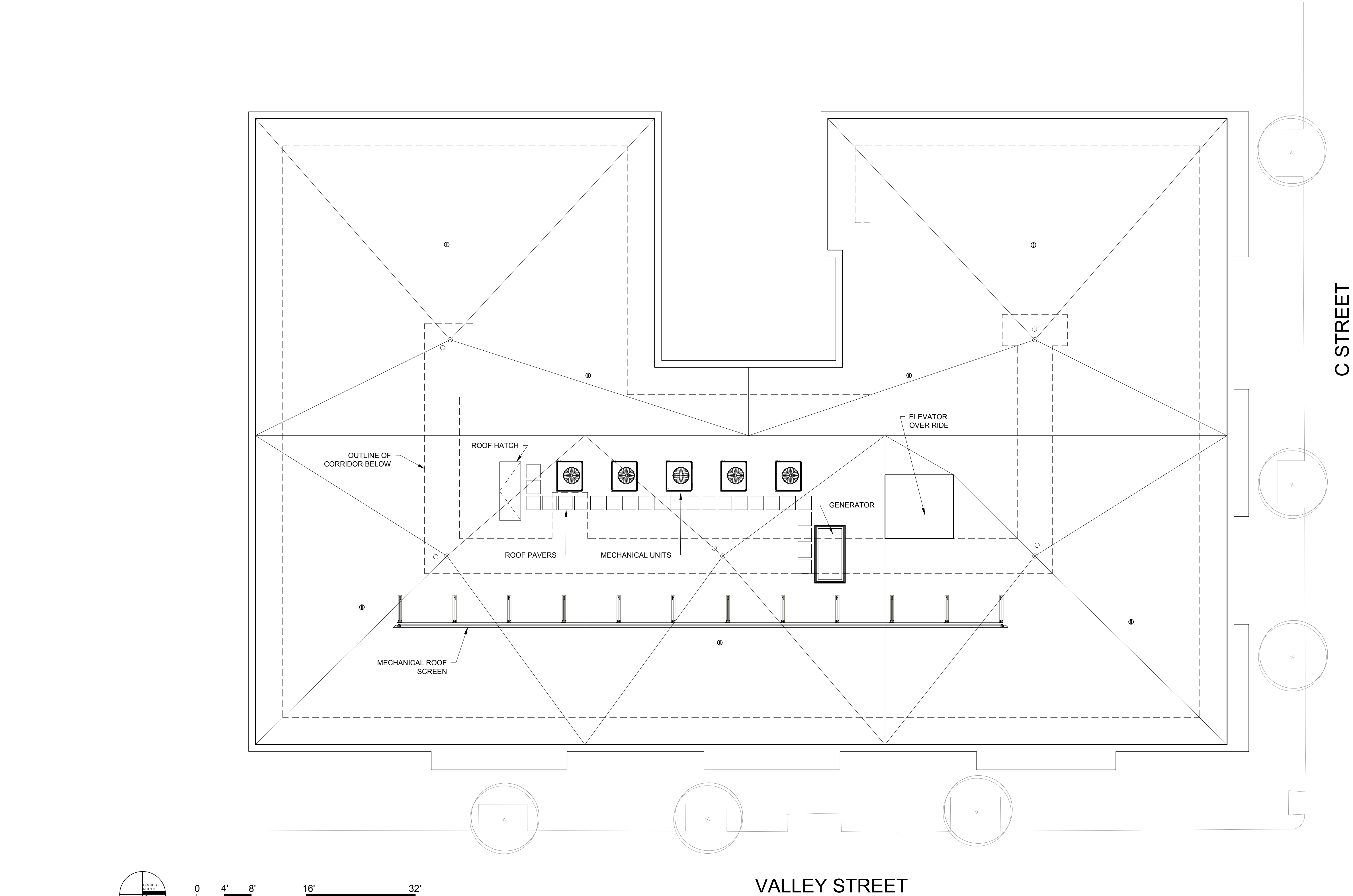


1 FIFTH FLOOR PLAN
1/8" = 1'-0"

VALLEY STREET

C STREET

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APARTMENTS

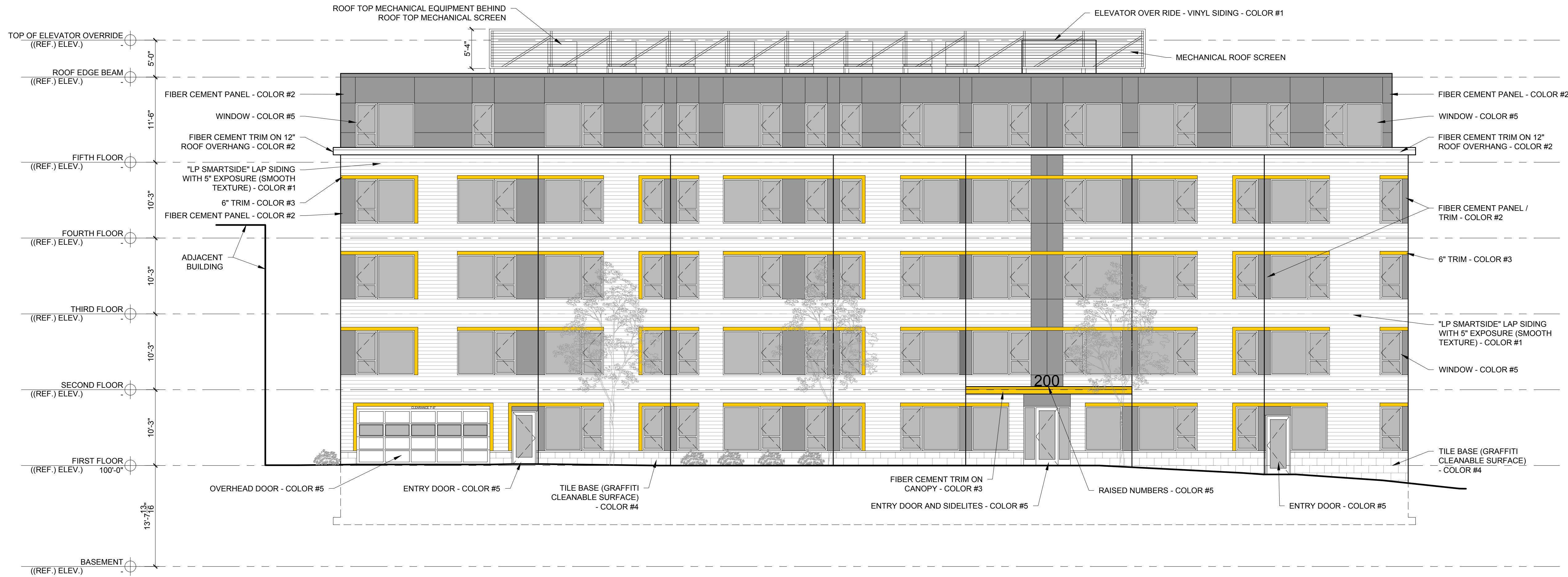
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020

MATERIAL FINISH SCHEDULE			
#	COLOR	SIDING TYPE	MANUFACTURER
1)	QUARRY GRAY	LAP SIDING - 5" EXPOSURE	LP SMARTSIDE
2)	NIGHT GRAY	FIBER CEMENT PANEL SIDING / TRIM	JAMES HARDIE
3)	PAINTED "HIGHLIGHT COLOR" T.B.D.	FIBER CEMENT TRIM	JAMES HARDIE
4)	T.B.D.	12"x24" TILE BASE	T.B.D.
5)	BLACK / BRONZE	DOORS AND WINDOWS	T.B.D.



1 VALLEY STREET EAST ELEVATION
1/8" = 1'-0"



1 VALLEY STREET EAST ELEVATION
1/8" = 1'-0"

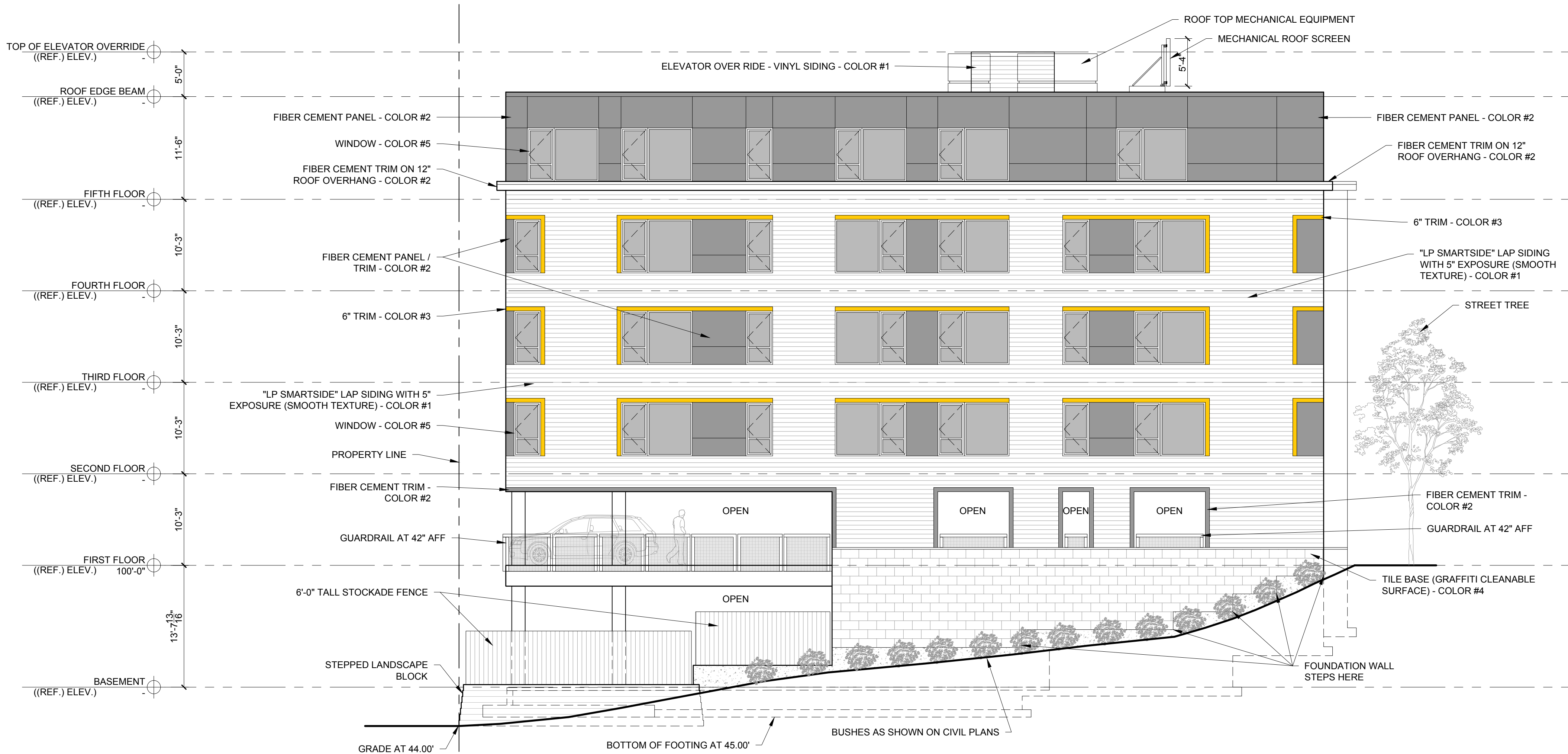
APARTMENTS
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020

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5)	BLACK / BRONZE	DOORS AND WINDOWS	T.B.D.



1 VALLEY STREET SOUTH ELEVATION
1/8" = 1'-0"



1 VALLEY STREET SOUTH ELEVATION
1/8" = 1'-0"



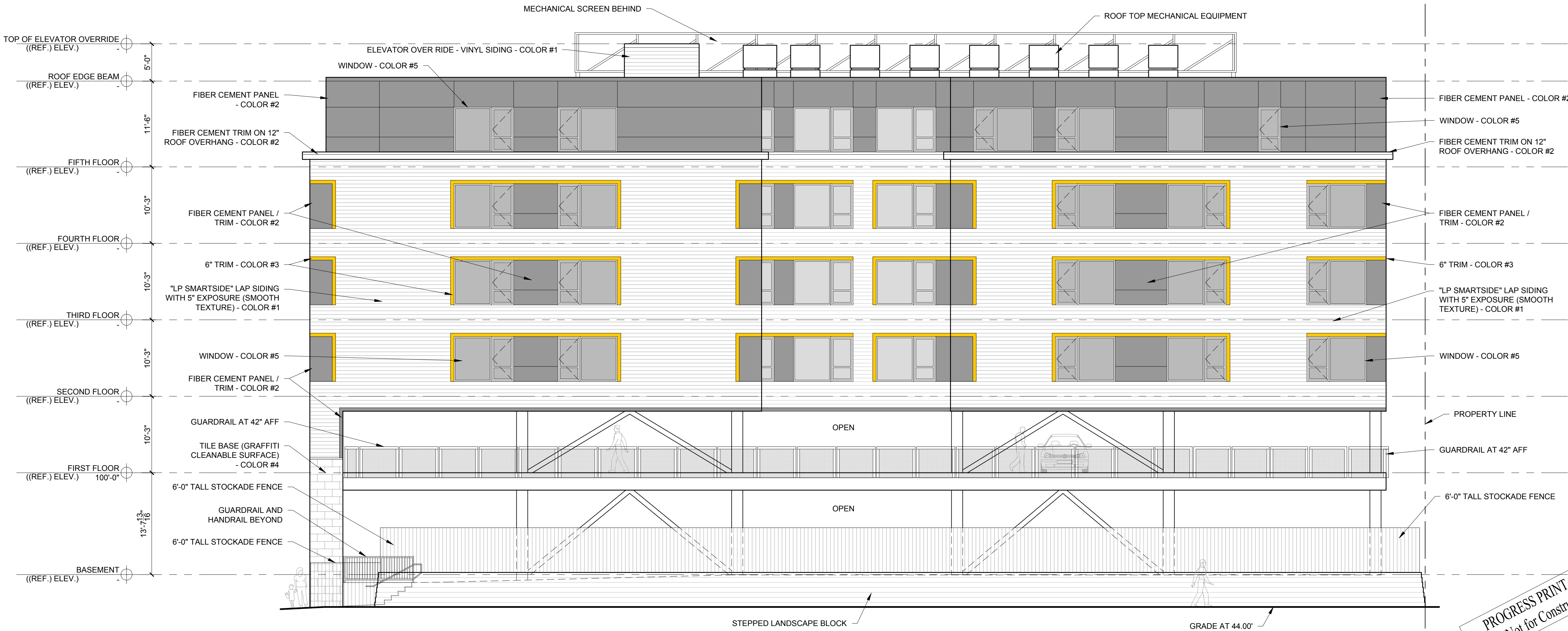
APARTMENTS
200 VALLEY STREET, PORTLAND, MAINE

MATERIAL FINISH SCHEDULE			
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5)	BLACK / BRONZE	DOORS AND WINDOWS	T.B.D.

JUNE 16, 2020



1 VALLEY STREET WEST ELEVATION
1/8" = 1'-0"



1 VALLEY STREET WEST ELEVATION
1/8" = 1'-0"



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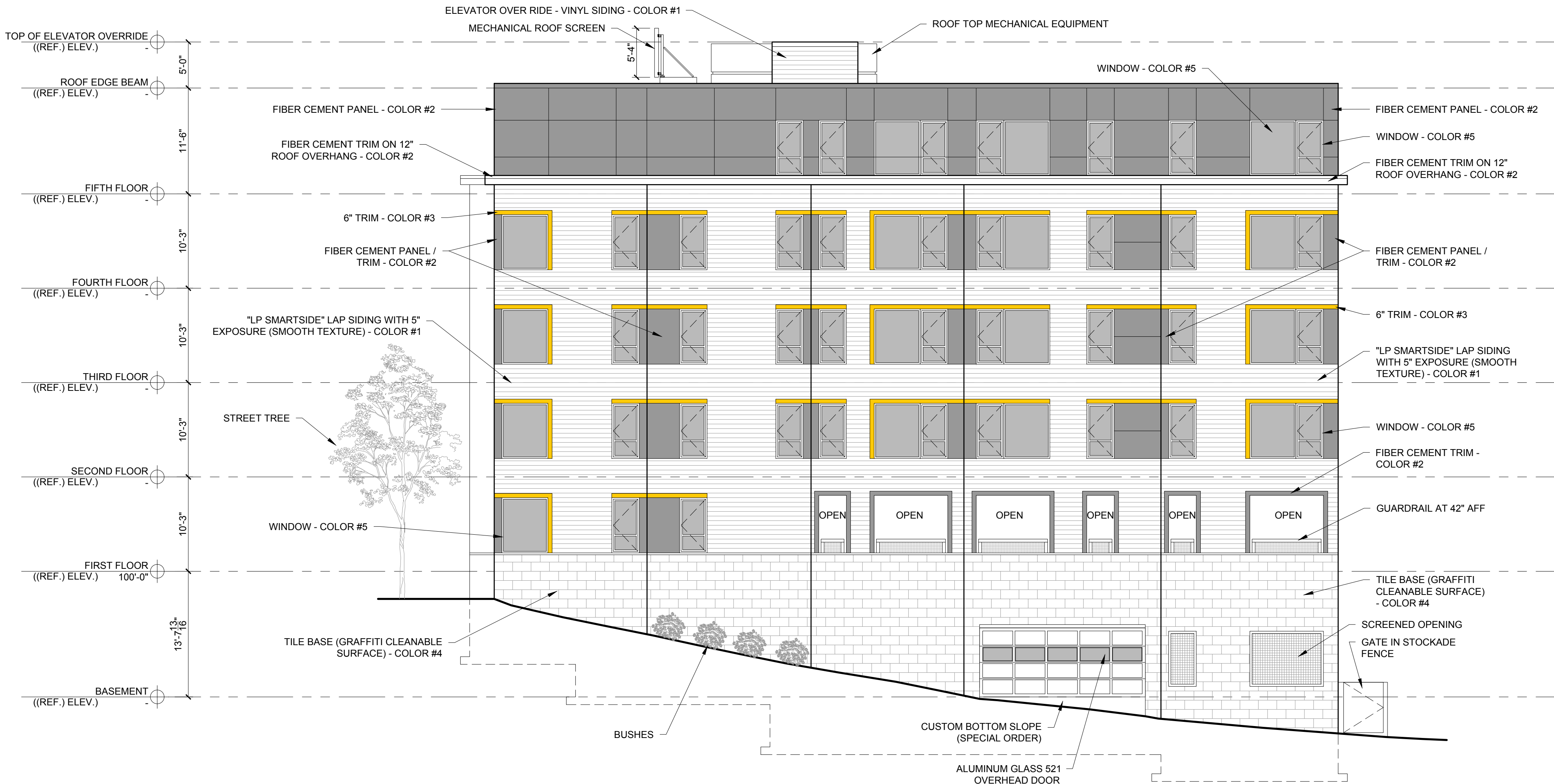
APARTMENTS
200 VALLEY STREET, PORTLAND, MAINE

MATERIAL FINISH SCHEDULE			
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4)	T.B.D.	12"x24" TILE BASE	T.B.D.
5)	BLACK / BRONZE	DOORS AND WINDOWS	T.B.D.

JUNE 16, 2020



1 VALLEY STREET NORTH ELEVATION
1/8" = 1'-0"



1 VALLEY STREET NORTH ELEVATION
1/8" = 1'-0"



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200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



1 PERSPECTIVE 1
NTS

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200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



APARTMENTS
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



1 PERSPECTIVE 3
NTS

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APARTMENTS
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1 PERSPECTIVE 4
NTS

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APARTMENTS
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



1 PERSPECTIVE 5
NTS



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200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



1 VIEW LOOKING NORTH ON VALLEY STREET



APARTMENTS
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



1 VIEW LOOKING FROM WALKING PATH
NTS

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APARTMENTS

200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



APARTMENTS

200 VALLEY STREET, PORTLAND, MAINE

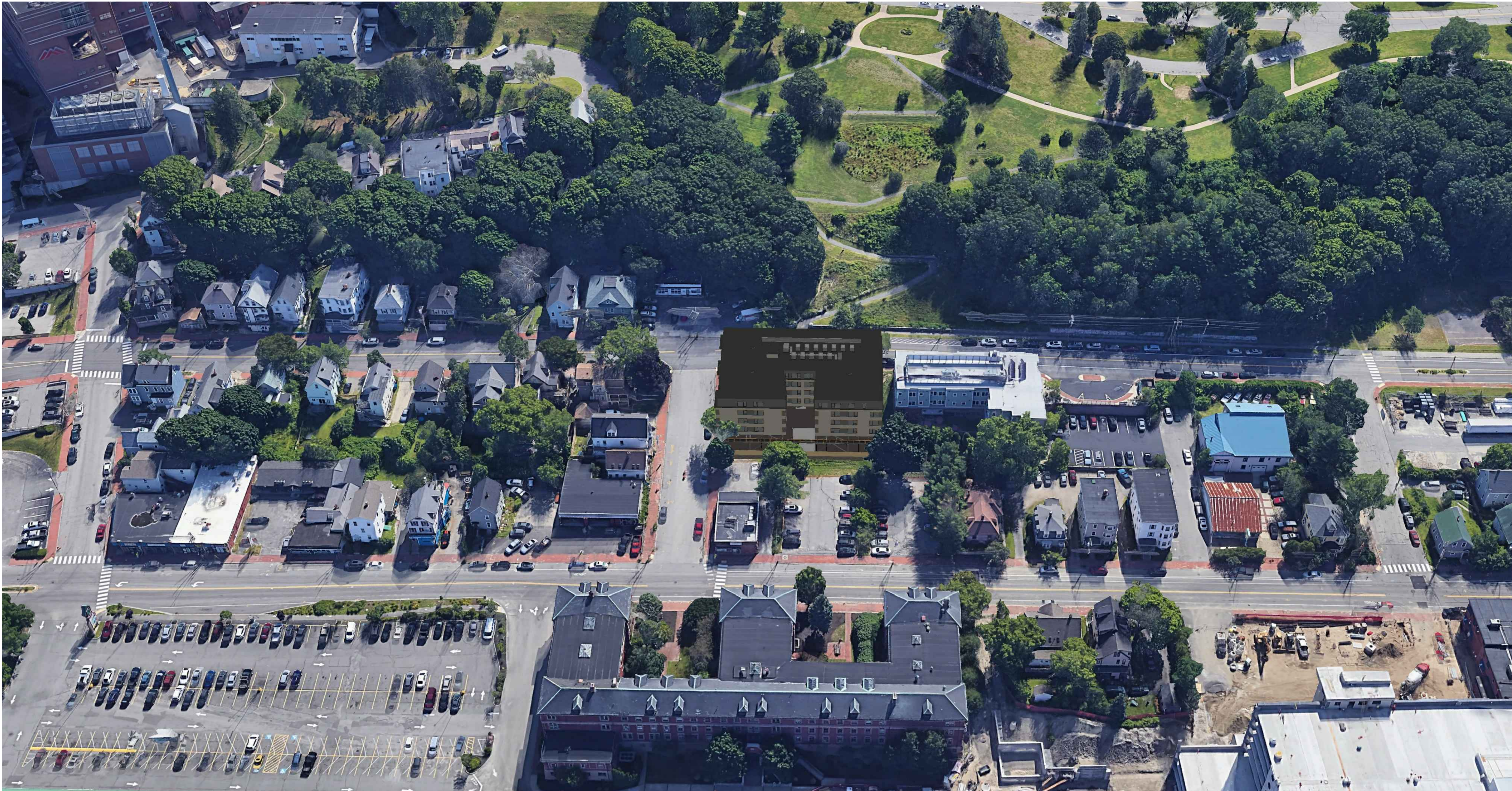
JUNE 16, 2020



APARTMENTS

200 VALLEY STREET, PORTLAND, MAINE

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APARTMENTS

200 VALLEY STREET, PORTLAND, MAINE

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JUNE 16, 2020



1 VIEW LOOKING SOUTH ON VALLEY STREET

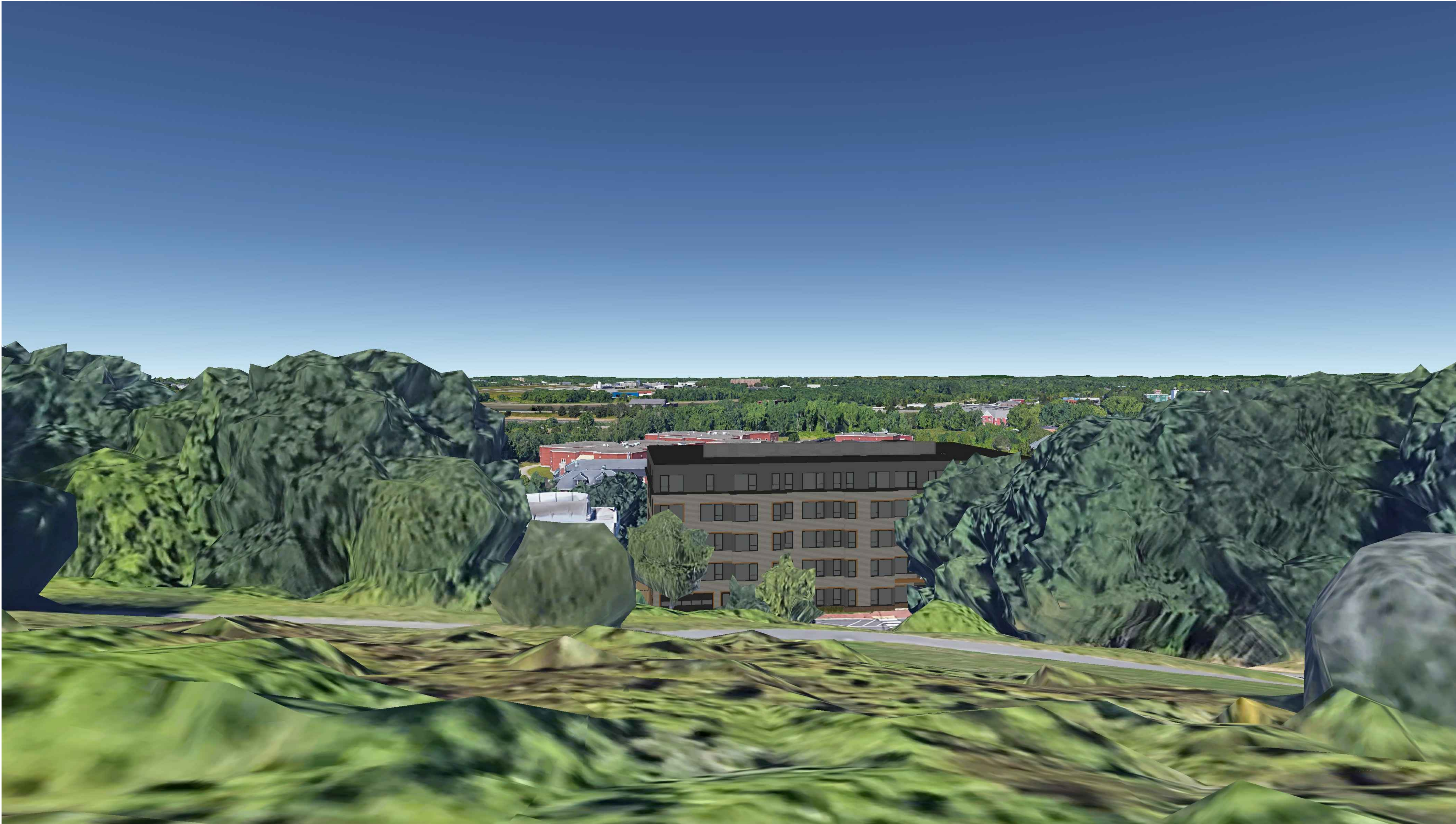
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200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



1 VIEW FROM PARK
NTS

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APARTMENTS

200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



1 VIEW FROM THE PARK

RYAN SENATORE ARCHITECTURE

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APARTMENTS

200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



APARTMENTS

200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



APARTMENTS
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



1 AERIAL 1
NTS



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APARTMENTS
200 VALLEY STREET, PORTLAND, MAINE

JUNE 16, 2020



1. FOR INFORMATION REGARDING PROPOSED GROUND LEVEL LAYOUT, REFER TO SITE PLAN – GROUND LEVEL, SHEET C-10, MOST RECENT VERSION.
2. FOR INFORMATION REGARDING PROPOSED UTILITIES, REFER TO THE UTILITY PLAN, SHEET C-20, MOST RECENT VERSION.
3. FOR INFORMATION REGARDING PROPOSED GRADING AND STORMWATER, REFER TO THE GRADING & DRAINAGE PLANS, SHEETS C-30 AND C-31, MOST RECENT VERSION.
4. UNIT TABULATION PROVIDED BY RYAN SENATORE ARCHITECTURE; REFER TO ARCHITECTURAL PLANS FOR FLOOR PLANS AND BUILDING HEIGHTS.
5. TOTAL SITE AREA INCLUDES 0.34 ACRES (14,964 S.F.). R.O.W. WIDTHS FOR VALLEY STREET AND C STREET ARE 60 FEET PER BOUNDARY SURVEY COMPLETED BY OWEN HASKEL, INC. DATED JULY 2019.
6. SITE BOUNDARIES PER BOUNDARY SURVEY & TOPOGRAPHICAL MAP WITH EXISTING CONDITIONS PROVIDED BY OWEN HASKELL, INC. ON A PLAN ENTITLED "ALTA/NSUBS LOTS 204 & 210 VALLEY STREET AND 6 C STREET PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR AVESTA HOUSING 307 CUMBERLAND AVENUE, PORTLAND, MAINE DATED JULY 2019.
7. AS OF 03/26/2020, THE SITE IS BOUNDED BY THE B-2 ZONE TO THE NORTH AND WEST, C-48 ZONE TO THE SOUTH, AND ROS ZONE TO THE EAST PER CITY OF PORTLAND GIS WEBSITE.
8. LOCUS PARCEL IS SHOWN ON THE CITY OF PORTLAND ASSESSOR'S MAP 64, BLOCK F, PARCELS 7,8,9 AND 15.
9. LOCUS PARCEL DOES NOT FALL IN A SPECIAL FLOOD HAZARD AREA PER FEMA FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 2300510013B, INDEXED DATED 7/17/1986.
10. THIS SHEET IS THE SUBDIVISION PLAT FOR THE CREATION OF UP TO SIXTY (60) DWELLING UNITS ON THE EXISTING SUBJECT PROPERTY.
11. THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SIDEWALKS, STORMWATER DEVICES, SITE LIGHTING, TRASH REMOVAL, RETAINING WALLS, AND SNOW REMOVAL.
12. THE OWNER SHALL BE RESPONSIBLE FOR COMPLYING WITH THE CONDITIONS OF CHAPTER 32 STORMWATER INCLUDING ARTICLE III, AT A MINIMUM. IN ADDITION, THE OWNER SHALL BE RESPONSIBLE FOR COMPLYING WITH THE CONDITIONS OF THE SUBMITTED STORMWATER MANAGEMENT PLAN AND THE APPROVED PLANS, AND MEET CITY STANDARDS AND STATE GUIDELINES.
13. THE PROPOSED DEVELOPMENT MUST COMPLY TO THE FOLLOWING AS APPROVED BY THE CITY:
 - 13.1. POST-CONSTRUCTION STORMWATER MANAGEMENT AGREEMENT: BOOK _____ PAGE _____

1. BEARINGS ARE BASED ON CITY MONUMENTS AT "D" STREET AND "A" STREET AS SHOWN ON PLAN REFERENCE 6.3 AND PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPARTMENT.
2. ELEVATIONS ARE BASED ON CITY DATUM. BENCHMARK: MONUMENT AT THE NORTHEAST CORNER OF SAINT JOHN STREET AND "C" STREET AS SHOWN ON PLAN REFERENCE 6.3 AND PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPARTMENT.
3. NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION, BUILDING ADDITIONS, OR RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS WAS OBSERVED.
4. NO PROPOSED CHANGES IN STREET LINES IS KNOWN BY THIS SURVEYOR.
5. THE DEED DESCRIPTION FOR TAX MAP 64-F-8&9 RECORDED IN 67010/287 CALLS FOR A DEPTH OF 101.85 FEET ON THE SOUTHERLY LINE AND A DEPTH OF 101.61 FEET OF THE NORTHERLY LINE. USING THESE DIMENSIONS CREATES AND OVERLAP WITH DEED DESCRIPTION FOR TAX MAP 64-F-2&3 RECORDED IN 34754/63. A DISTANCE OF 100 FEET WAS HELD FROM ST. JOHN STREET TO RECREATE THE REAR LINE SINCE THESE LOTS WERE SUBDIVIDED FIRST AS SHOWN ON PLAN REFERENCE 6.4.
6. REFERENCE IS MADE TO THE FOLLOWING PLANS:
 - 6.1. "BOUNDARY & TOPOGRAPHIC SURVEY ON ST. JOHN STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN, INC." APRIL 2018 BY OWEN HASKELL, INC.
 - 6.2. "SUBDIVISION PLAN, FLORENCE HOUSE, 190 VALLEY STREET, PORTLAND, MAINE PREPARED FOR: AVESTA HOUSING L.P." OCTOBER 17, 2007 RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 209, PAGE 28.
 - 6.3. "SAINT JOHN ST./VALLEY ST. STREETScape IMPROVEMENTS EXISTING CONDITIONS PLAN" CITY OF PORTLAND, MAINE PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION DATED NOV. 2011
 - 6.4. "PLAN OF LANDS ON ST. JOHN ST. WM. A. GOODWIN, CITY CIVIL ENGINEER JULY 1879" RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEED IN PLAN BOOK 4, PAGE 21.
7. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES WARRANT THAT THE LOCATION OF THE UTILITIES SHOWN IS AS ACCURATE AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.
8. BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS LOCATED IN ZONE C, AREAS OF MINIMAL FLOODING, ON THE FLOOR INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051 0013B, WHICH BEARS AND EFFECTIVE DATE OF JULY 17, 1986.

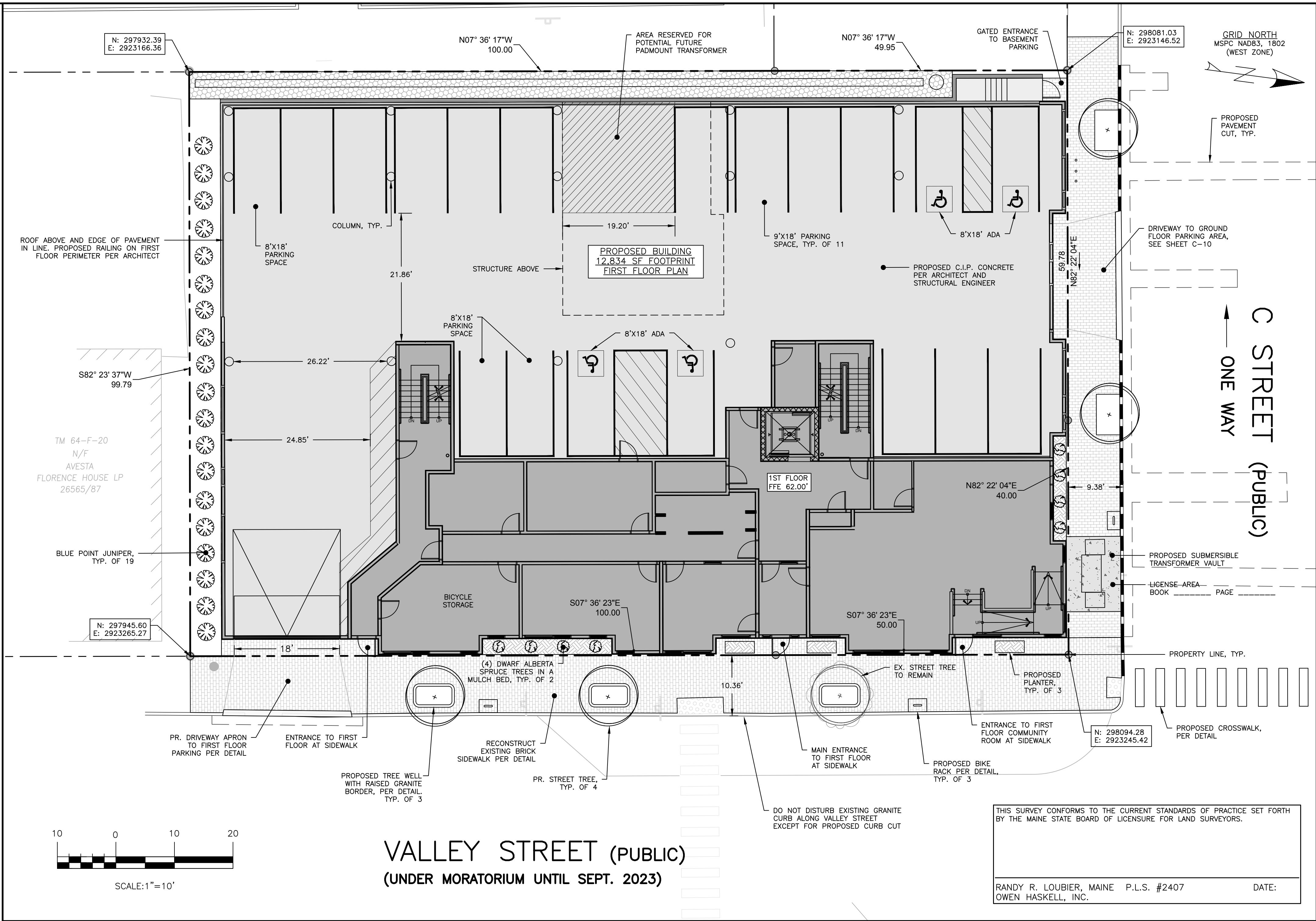
THERE ARE NO EXISTING EASEMENTS PER BOUNDARY/EXISTING CONDITIONS PLAN DATED JULY 2019 BY OWEN HASKELL, INC.
THERE ARE NO OR PROPOSED EASEMENTS.

TBD

TBD

UNIT TABULATION	
UNIT NUMBER	SIZE (SF)*
201	522
202	619
203	619
204	519
205	567
206	588
207	489
208	868
209	634
210	868
211	477
212	942
213	826
214	1113
215	1057
301	522
302	619
303	619
304	519
305	567
306	588
307	489
308	868
309	634
310	868
311	477
312	942
313	826
314	1113
315	1057

401	522
402	619
403	619
404	519
405	567
406	588
407	489
408	868
409	634
410	868
411	477
412	942
413	826
414	1113
415	1057
501	522
502	608
503	586
504	519
505	547
506	976
507	836
508	634
509	836
510	477
511	508
512	651
513	820
514	1086
515	836
*UNIT AREA MEASURED FROM OUTSIDE OF EXTERIOR WALLS TO THE CENTER OF SHARED WALLS.	

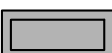
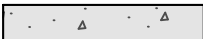


SPACE AND BULK STANDARDS		
ZONE: B-2	REQUIRED	PROPOSED
MINIMUM LOT SIZE	NONE	14,964 SF
MINIMUM STREET FRONTAGE	20'	150'
MAXIMUM FRONT YARD SETBACK	NONE	0.5'
MINIMUM SIDE YARD SETBACK	NONE	0.5'
MINIMUM REAR YARD SETBACK	0' *	5'
STRUCTURE STEPBACKS (SIDE YARD ABOVE 35')	NONE (ABUTS B2)	5'
STRUCTURE STEPBACKS (REAR YARD ABOVE 35')	NONE (ABUTS B2)	5'
MAXIMUM LOT COVERAGE	NONE	14,245 SF
MAXIMUM BUILDING HEIGHT	70' **	67.18'
MAXIMUM IMPERVIOUS AREA	NONE	95%
MAXIMUM NUMBER OF DWELLING UNITS	NA	60
PARKING	60 SPACES ***	40 SPACES

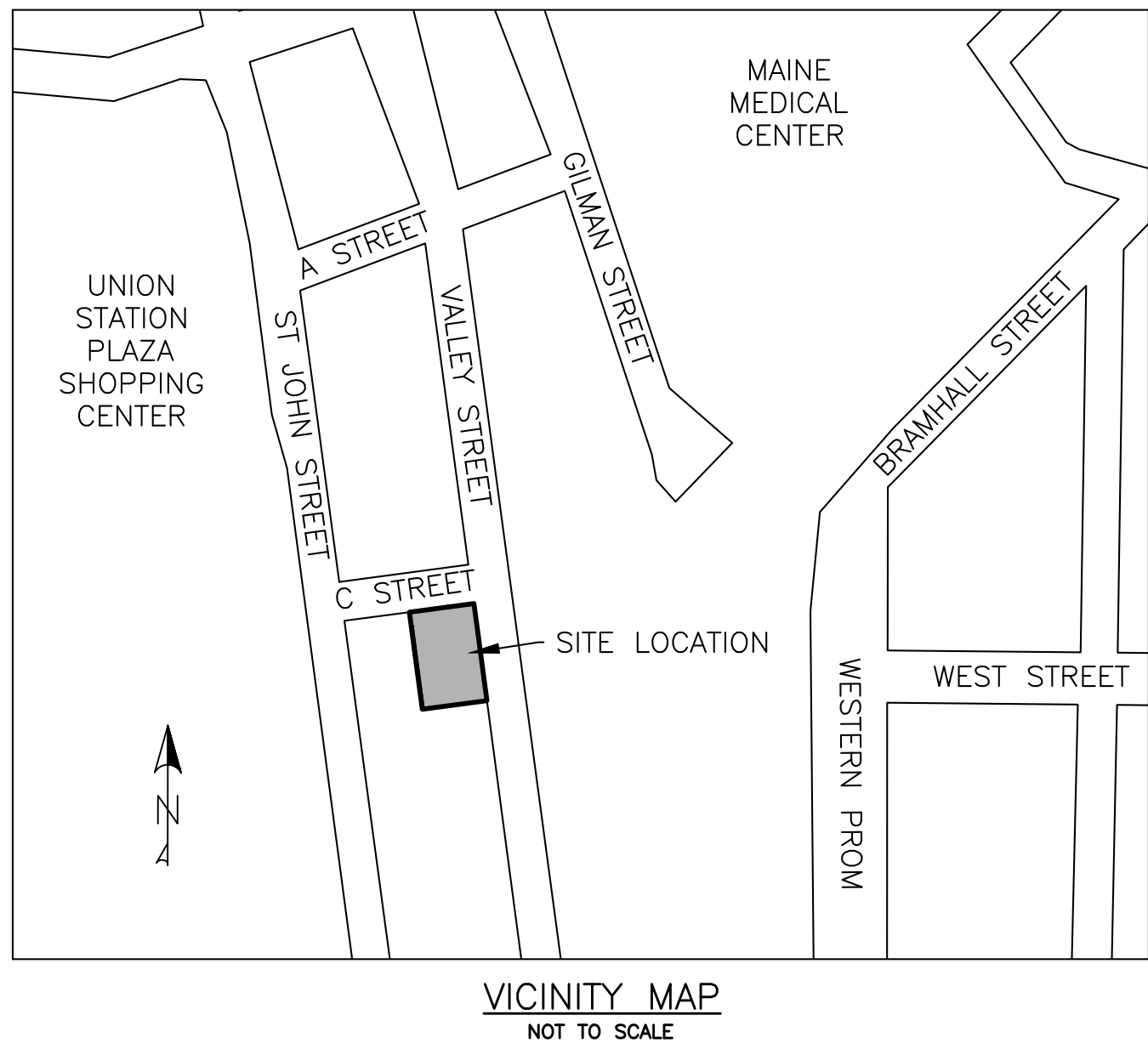
* 10' REAR SETBACK (B-2 ZONING) IS REDUCED TO 0' PER 75% LOW INCOME HOUSING BONUS (DIV. 30, SEC. 14-488)

** 45' MAXIMUM BUILDING (B-2 ZONING) IS INCREASED TO 70' PER 75% LOW INCOME HOUSING BONUS (DIV. 30, SEC. 14-488)

*** PER CITY ORDINANCE, STANDARD REQUIREMENT OF 1 SPACE PER UNIT = 60 SPACES (DIV. 20, SEC. 14-332). PER INSTITUTE OF TRANSPORTATION ENGINEERS, AFFORDABLE HOUSING REQUIREMENT OF 0.55 SPACES PER UNIT = 33 SPACES. FINAL REQUIREMENT TO BE DETERMINED BY PLANNING BOARD (DIV. 20, SEC. 14-332.2).

PROPERTY MARKER	
PROPERTY LINE	
SETBACK	
PROPOSED BUILDING	
PAVEMENT	
CRUSHED STONE	
CONCRETE	
LANDSCAPED AREAS	
BRICK	
CURB	
STRIPING	

PARKING SUMMARY	
	# PARKING SPACES
REQUIRED	—
STANDARD (9'X18')	25
COMPACT (8'X18')	7
ADA	8
TOTAL PROPOSED SPACES	40



RECORDING INFORMATION STATE OF MAINE CUMBERLAND COUNTY REGISTRY OF DEEDS	
RECEIVED:	_____
RECORDED IN	_____
ATTEST:	_____
REGISTRAR	

OWNER:
 AVESTA HOUSING
 307 CUMBERLAND AVENUE
 PORTLAND, MAINE 04101
 CONTACT: CATHERINE ELLIOTT

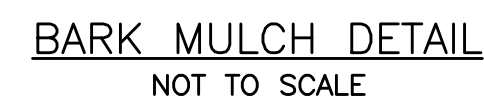
CIVIL/SITE ENGINEER:
 ACORN ENGINEERING, INC.
 65 HANOVER STREET
 PORTLAND, MAINE 04101
 CONTACT: WILL SAVAGE, P.E.

SURVEYOR
 OWEN HASKELL, INC.
 390 US ROUTE 1, UNIT 10
 FALMOUTH, MAINE 04105
 CONTACT: RANDY LOUBIER, P.L.S.

[illegible]

1. ALL PLANT SELECTION AND INSTALLATION WILL BE IN COMPLIANCE WITH THE CITY OF PORTLAND TECHNICAL MANUAL (SECTION 4).
2. CONTRACTOR TO VERIFY ALL UTILITIES ON PROPERTY AND TO PROTECT ALL UTILITIES DURING EXCAVATION FOR PLANTS.
3. IF THERE IS A DISCREPANCY BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLAN AND THE NUMBER OF PLANTS SHOWN IN PLANT LIST (IF ANY), THE NUMBER OF PLANTS SHOWN ON PLAN WILL TAKE PRECEDENCE.
4. ALL MATERIAL SHALL COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, AMERICAN ASSOCIATION OF NURSERYMAN.
5. ALL DISTURBED AREAS NOT TO BE PAVED OR PLANTED SHALL BE LOAMED AND SEEDED AS SHOWN. THE SEED MIX SPECIFICATIONS ARE AS FOLLOWS: LESCO FINE FESCUE LINKS BLEND OF 35% HARD FESCUE, 35% CREEPING REED FESCUE, 20% CHEWINGS FESCUE AND 10% SHEEP FESCUE. ADD 5% LITTLE BLUESTEM AND 5% NORTHEAST WILDFLOWER SEED MIXTURE BY WEIGHT TO THE LINKS BLEND.
6. FOR PRICING PURPOSES, PROVIDE A PER TREE UNIT COST FOR STAKING AND GUYING, IF STAKING AND GUYING IS REQUIRED, REMOVE TREE WRAP, STAKES, AND GUY WIRES AT END OF FIRST GROWING SEASON.
7. FOR TREE PLANTING IN LAWN AREAS, ANY DISTURBED LAWN SHALL BE LOAMED AND SEEDED AS NECESSARY.
8. NEW TREES TO BE INSTALLED WITH A SLOW RELEASE WATERING BAG.
9. CONTRACTOR TO BE HELD RESPONSIBLE FOR THE WATERING AND MAINTENANCE OF ALL PLANT MATERIAL AND LANDSCAPE IMPROVEMENTS FOR 30 DAYS FOLLOWING INSTALLATION. FOLLOWING THIS PERIOD, THE LANDOWNER OR PROPERTY MANAGEMENT SHALL BE RESPONSIBLE FOR CONTINUED WATERING AND MAINTENANCE. CONTRACTOR TO MAINTAIN A ONE YEAR WARRANTY ON ALL PLANTINGS FOLLOWING FINAL INSTALLATION.
10. ALL PROPOSED PLANTS SHALL BE LOCATED AS SHOWN ON THE PLANS. CONTRACTOR TO NOTIFY ENGINEER WHEN PLANTINGS HAVE BEEN MOBILIZED ON SITE. ENGINEER TO INSPECT AND ACCEPT OR REJECT ANY SPECIMENS ON THE BASIS OF APPARENT HEALTH, HARDINESS, AND CONFORMANCE WITH THE PLANTING SCHEDULE. REJECTED SPECIMENS ARE TO BE REPLACED BY THE CONTRACTOR AT NO ADDED COST TO THE OWNER. ACCEPTANCE DOES NOT WAIVE THE REQUIRED ONE YEAR PLANTING WARRANTY.

1. DIG HOLE AT LEAST 2 TIMES THE DIAMETER OF THE ROOT BALL AND AS DEEP AS THE ROOT BALL (NO DEEPER). SET ROOT BALL CENTERED, WITH THE TOP AT DOWNHILL EDGE OF THE HOLE.
2. BACKFILL WITH TOPSOIL TO FILL THE ENTIRE FRAGMENT OF THE HOLE. THE SOIL SHOULD BE THE CHARACTERISTICS OF TOPSOIL IN THE VICINITY WHICH PRODUCE A HEAVY GROWTH. TOPSOIL SHALL CONTAIN NOT LESS THAN SIX PER CENT MORE THAN 20% ORGANIC MATTER. TOP SOIL SHALL HAVE A PH VALUE OF 6.5 OR LESS.
3. REMOVE EXCESSIVE TOPSOIL FROM THE AREA WHERE THERE ARE TREES. THERE MUST BE NO CONTAINER GROWN STOCK - REMOVE CONTAINER PROTECTING THE ROOT BALL. GENTLY COMB OUT THE TOPSOIL FROM THE ROOT BALL.
4. BACKFILL THE HOLE WITH TOPSOIL TO A DEPTH NOT TO EXCEED 8" THEN WATER SUFFICIENTLY TO SETTLE TOPSOIL. REPEAT STEP BACKFILL, WATER, DRAN. TOPSOIL SHALL BE TAMPED UNDER EDGES OF PLANTERS. PLANTS SHALL BE WATERED DAILY FOR ONE WEEK TO CREATE AN EARTHEN SAUCER. SOAK PLANTS TWICE WITH THE FIRST TWENTY-FOUR HOURS OF PLANTING.



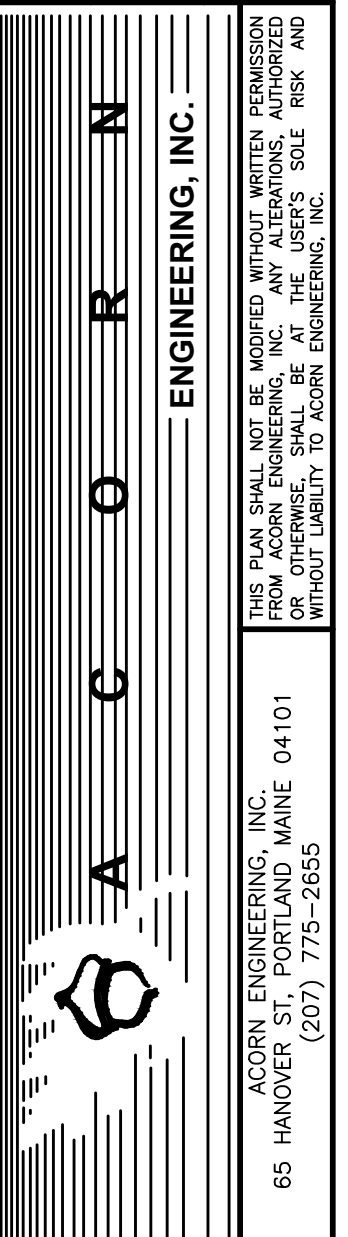
PERMIT LEVEL
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CONSTRUCTION

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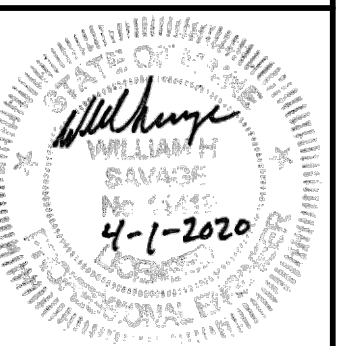
AVESIA VALLEY STREET LP
307 CUMBERLAND AVE, PORTLAND, ME 04101

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PROJECT NAME:

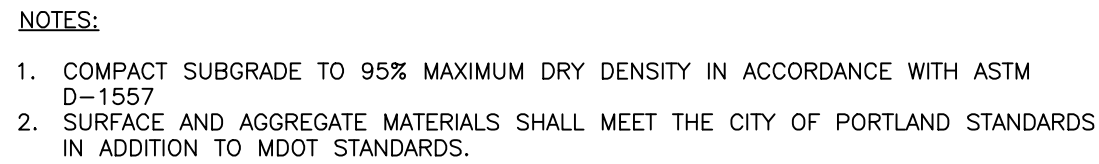


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DESIGNED BY:	SDL
DRAWN BY:	KRB
CHECKED BY:	WHS

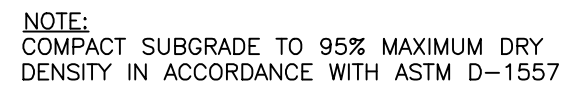


DRAWING NO.

C-42



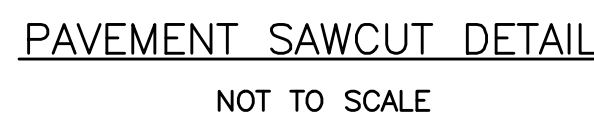
CITY OF PORTLAND ARTERIAL
BITUMINOUS PAVEMENT PROFILE:
VALLEY STREET
NOT TO SCALE



CITY OF PORTLAND LOCAL
BITUMINOUS PAVEMENT PROFILE:
C STREET AND BASEMENT LEVEL

NOT TO SCALE

- NOTES:
1. SAWCUT EXISTING PAVEMENT AND REMOVE 2' STRIP OF EXISTING PAVEMENT. APPLY BITUMINOUS TACK COAT PRIOR TO PLACEMENT OF NEW BITUMINOUS PAVEMENT.
 2. THE NEW PAVEMENT SECTION SHALL MEET THE CITY OF PORTLAND ARTERIAL BITUMINOUS PAVEMENT SECTION DETAIL AT A MINIMUM OR THE EXISTING PAVEMENT AND AGGREGATE BASE AND SUBBASE DEPTH WHICHEVER IS GREATER.



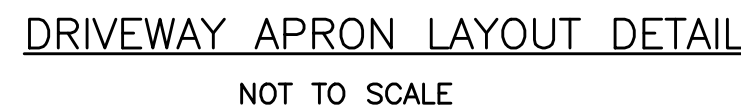
- NOTES:**
1. BRICKS TO BE USED:
- NEW CONSTRUCTION:
- 4"XB PINE HALL PATHWAY PAVBR BRICK; MFG. BY CARL H. BRICK CO. MADISON, NORTH CAROLINA. LANCEHANCE ITEM #3193623; PINE HALL PATHWAY PAVBR BRICK.
- REPAIR/MAINTENANCE TO EXISTING BRICK SIDEWALKS:
- VERMONT BACKER SUPPLIED BY GAGNE AND SON'S SPECIFICATION NUMBER: VERMONT PAVBR BRICK", ITEM NUMBER #VB8B
2. INSTALL BRICK FLUSH UP TO BUILDING, PAVEMENT, STAIRS, CONCRETE SURFACES, CURB OR LANDSCAPED AREAS.



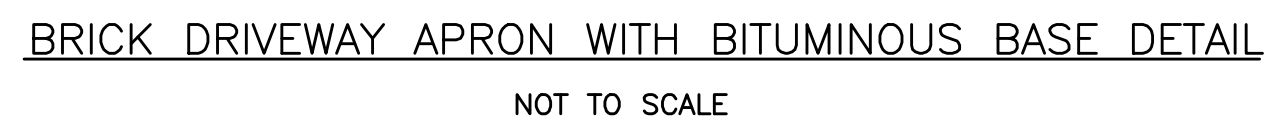
- NOTES:
1. CURB SHALL BE RESET IN ACCORDANCE WITH MDOT 609.08 WITH THE EXCEPTION OF CURB SPACING TO BE INSTALLED PER DETAIL.

VERTICAL GRANITE CURB AND TIPDOWN INSTALLATION
IN EXISTING STREETS DETAIL
NOT TO SCALE

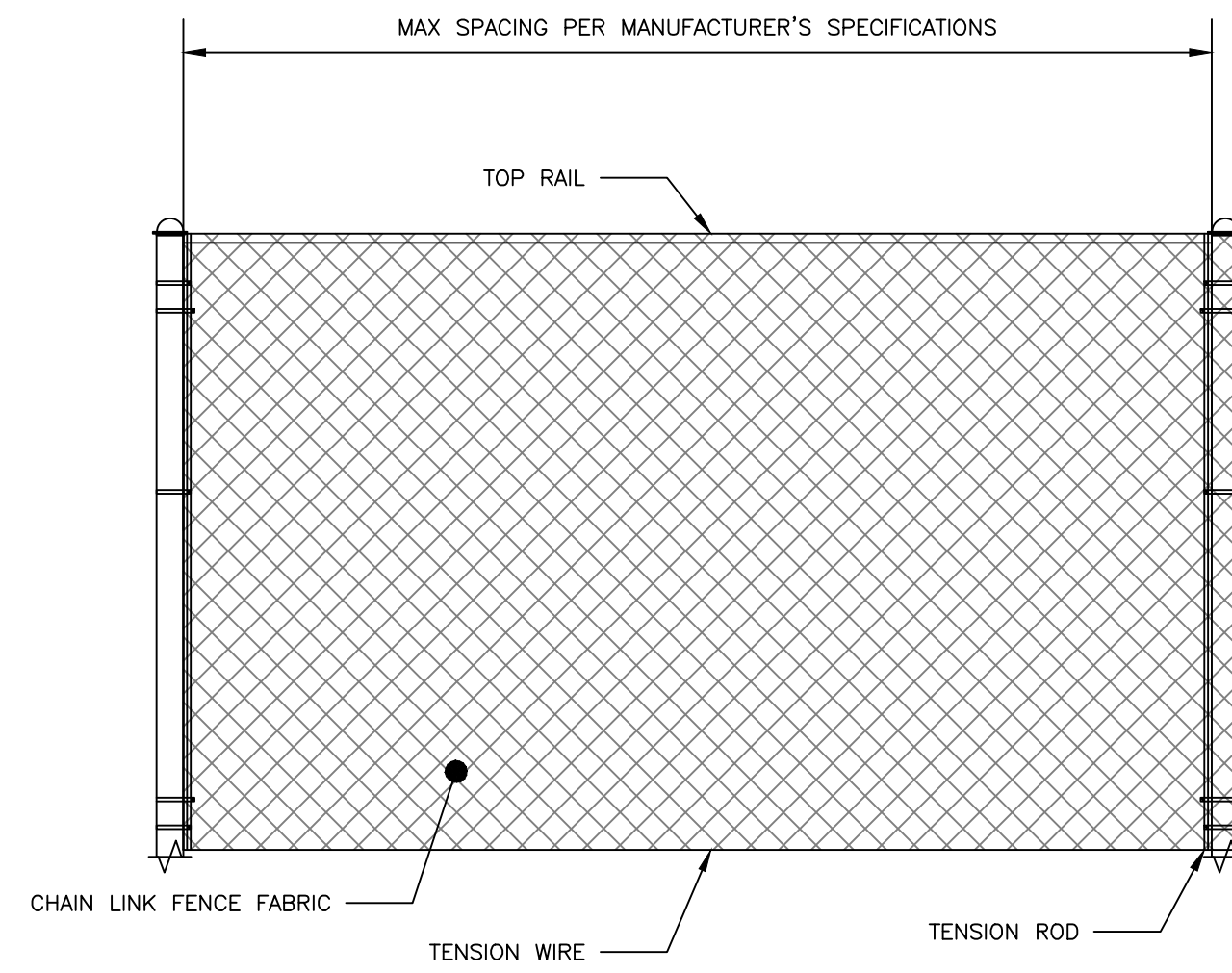
- NOTES:**
1. REFER TO GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR SITE GRADING
 2. REFER TO BRICK DRIVEWAY APRON WITH BITUMINOUS BASE
DETAIL FOR APRON CROSS-SECTION
 3. MATERIALS/DETAILS OF DRIVEWAY APRON TO BE APPROVED BY
CITY (DPW AND PLANNING) PRIOR TO IMPLEMENTATION



- BRICKS TO BE USED:
- NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVEE BRICK; MFG. BY PINE
HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE
ITEM #193623.
- REPAIR/MAINTENANCE TO EXISTING BRICK SIDEWALKS:
VERMONT PAVEE; SUPPLIED BY GAGNE AND SONS.
SPECIFICATION NUMBER: "VERMONT BACKER BRICK", ITEM
NUMBER # VB88



-
- Diagram illustrating the elevation view of a fence post assembly, showing components and dimensions:
- TERMINAL POST CAP
 - RAIL END BAND
 - BLACK GALVANIZED CHAINLINK FENCE
 - TENSION BAND, TYP. PER NOTE 2
 - 42" TALL FROM TOP OF WALL
 - TOP OF WALL
 - MIN. 30" FOR TERMINAL POSTS
 - MIN 18" FOR LINE POSTS
 - REFER TO STRUCTURAL ENGINEER PLANS FOR REBAR LOCATIONS
 - REFER TO STRUCTURAL ENGINEER PLANS FOR WIDTH, MIN 4 X D



SIDE PROFILE VIEW

FRONT FACING PROFILE VIEW

RETAINING WALL WITH CHAIN LINK FENCE
NOT TO SCALE

-
- Diagram illustrating the plan view of a tree well structure. The structure is rectangular with rounded corners, defined by a raised vertical granite curb. Key dimensions and features are labeled:
- MIN 5'**: Minimum depth of the tree well.
 - MIN 6'**: Minimum width of the tree well.
 - MIN 4'**: Minimum width of the curb area.
 - MIN 8"**: Minimum width of the paved road edge.
 - 1.5% SLOPE**: Indicated by a downward arrow, showing the slope of the road surface.
 - RAISED VERTICAL GRANITE 5"x12" CURBING W/ THERMAL FINISH, TREE WELL 7" REVEAL**: Label pointing to the curb structure.
 - R=1'**: Radius of the rounded corners.
 - VERTICAL GRANITE CURB 7" REVEAL (TYP.) AT PAVED RD EDGE**: Label pointing to the curb at the road edge.
- PLAN VIEW**

TREEWELL IN BRICK SIDEWALK
NOT TO SCALE

-
- RECOMMENDATIONS:
- EACH BI SPACE I BY 16",
- WALL
- BICYCLES WALL-MOUNTED AGAINST WALL
- 3'-WIDE WALKWAY
- BICYCLES FLOOR-MOUNTED WITHIN AISLE
- 40" 36" 40" 40"

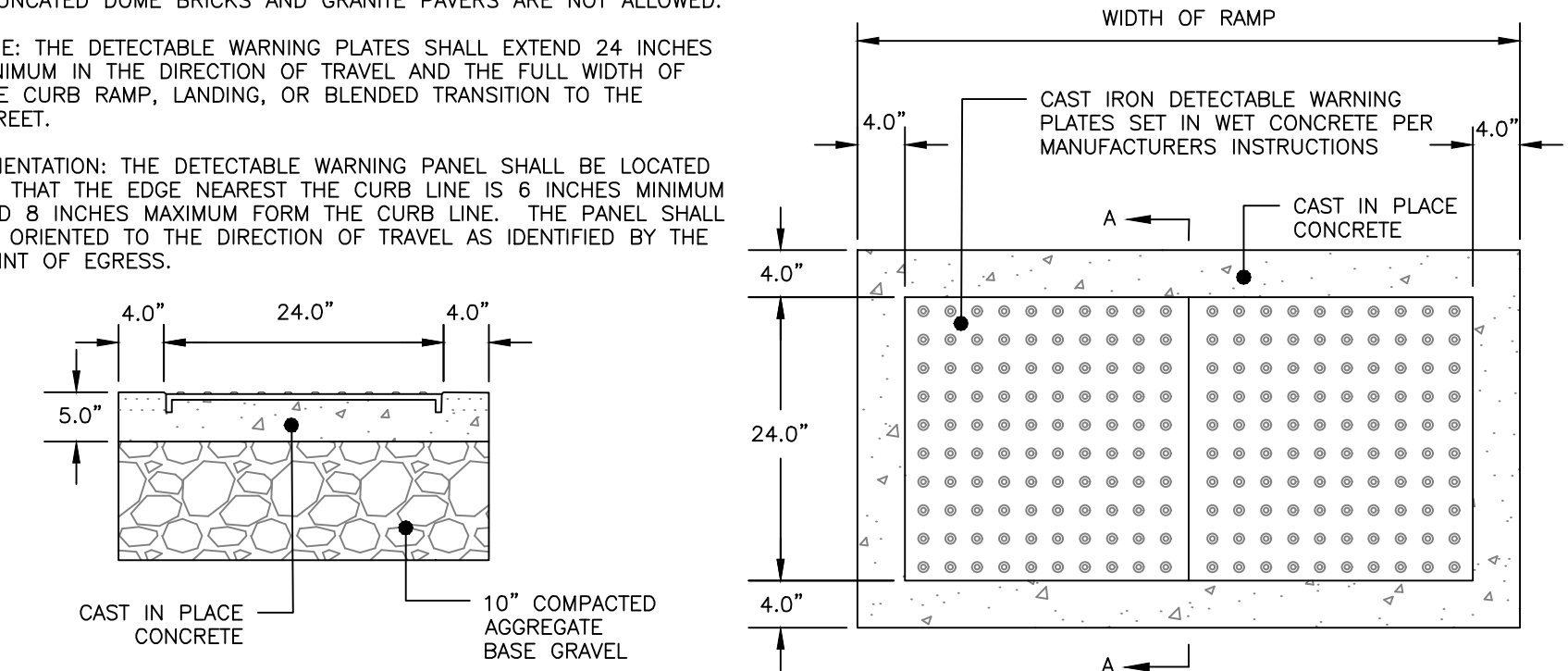
CROSS SECTION VIEW

-
- 16"
- 3'-WIDE WALKWAY
- 40" 36" 40" 40"

PLAN VIEW

BICYCLE RACK INTERIOR
NOT TO SCALE

1. ALL DETECTABLE WARNING PLATES SHALL BE UNCOATED CAST IRON. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MOOT CURE A STRUCTURAL CONCRETE MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. SIZE: THE DETECTABLE WARNING PLATES SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
5. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 6 INCHES MAXIMUM FROM THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.



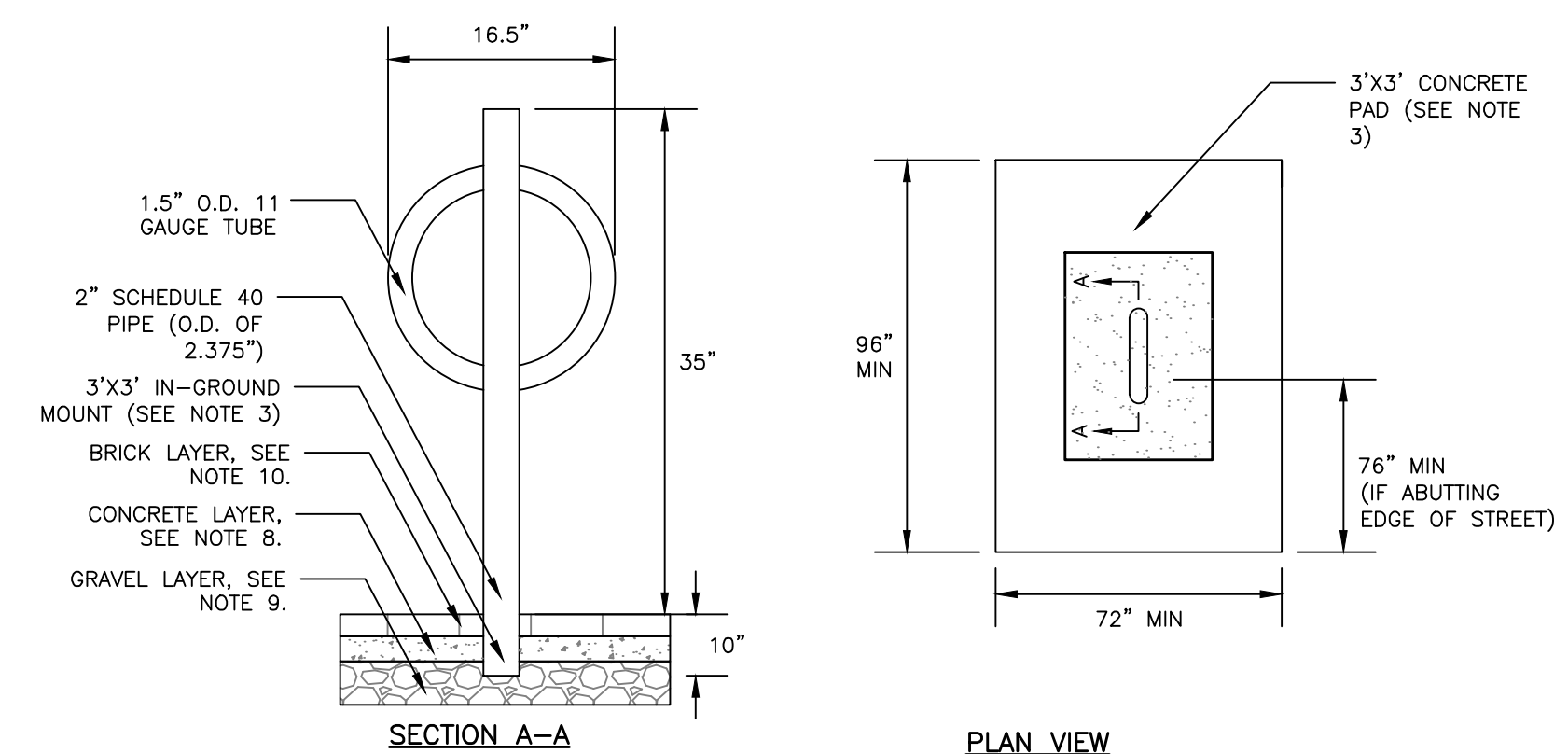
SECTION A-A

PLAN VIEW

SIDEWALK RAMP DETECTABLE WARNING PANEL

NOT TO SCALE

1. BICYCLE RACK SHALL HAVE CAPACITY FOR TWO BICYCLES.
2. BICYCLE RACK PARTS SHALL BE OF UNIFORM COLOR AND SHALL BE FINISHED IN ACCORDANCE WITH PRODUCT SPECIFICATION. PER CITY OF PORTLAND TECHNICAL STANDARDS ALL BICYCLE RACKS WITHIN THE RIGHT-OF-WAY SHALL MATCH THE SURROUNDING COLOR. COLOR SPECIFICATIONS AS DESCRIBED IN THE MUNICIPAL LIGHTING STANDARDS; IF NO DESIGNATED COLOR FOR THAT AREA EXISTS, BICYCLE RACKS SHALL BE BLACK.
3. BICYCLE RACK SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S MOST RECENT INSTALLATION RECOMMENDATIONS, AND SHALL BE INSTALLED WITH AN IN-GROUND MOUNT UNLESS OTHERWISE APPROVED BY ENGINEER.
4. BICYCLE RACK SHALL BE "DERO BIKE HITCH", AS MANUFACTURED BY DERO BIKE RACKS.
5. MINIMUM OFFSETS SHOWN. MANUFACTURER'S RECOMMENDED OFFSETS SHALL BE ENFORCED WHERE POSSIBLE.
6. MINIMUM DISTANCE BETWEEN BICYCLE RACKS SHALL BE 24". RECOMMENDED DISTANCE BETWEEN BICYCLE RACKS SHALL BE 38".
7. ALL OFFSETS ARE FROM OUTSIDE EDGES OF ITEMS.
8. CONCRETE SHALL BE 4000 PSI @28 DAYS. BOTTOM OF CONCRETE SHALL BE AT TOP OF SIDEWALK GRAVEL ELEVATION. DEPTH VARIES APPROX. 4"-7".
9. GRAVEL LAYER SHALL BE INSTALLED IN ACCORDANCE WITH BRICK SIDEWALK WITH BITUMINOUS BASE DETAIL, AND SHALL BE MAINTAINED TO 703.06 TYPE.
10. TOP OF BRICK LAYER SHALL BE AT SAME ELEVATION IN ACCORDANCE WITH BRICK SIDEWALK DETAIL.



SECTION A-A

PLAN VIEW

BICYCLE RACK DETAIL

NOT TO SCALE

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

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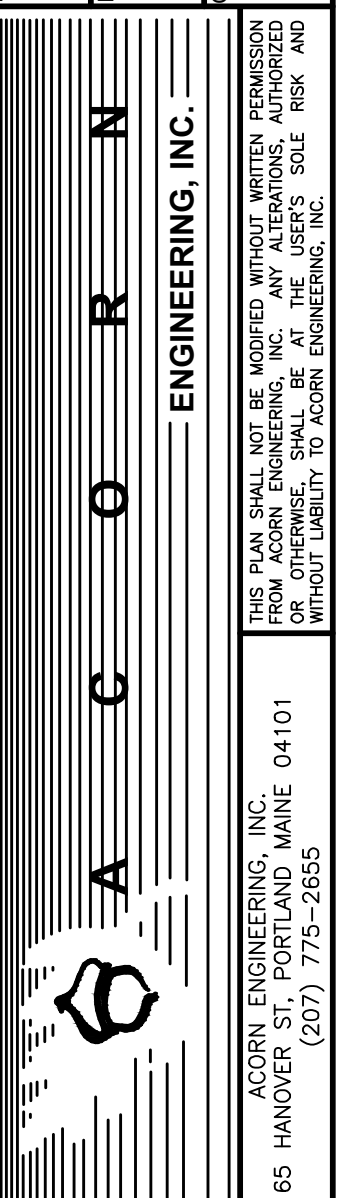
SITE DETAILS - 2

210 VALLEY STREET REDEVELOPMENT

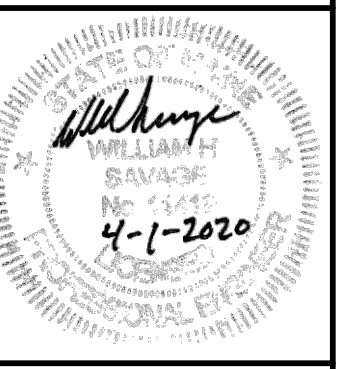
AVESIA VALLEY SIREN LP
307 CUMBERLAND AVE, PORTLAND, ME 04101

PROJECT NAME:

CLIENT:



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IN:	1127
SCALE:	NTS
DESIGNED BY:	SJL
DRAWN BY:	KRB
CHECKED BY:	WHS



DRAWING NO.

C-41